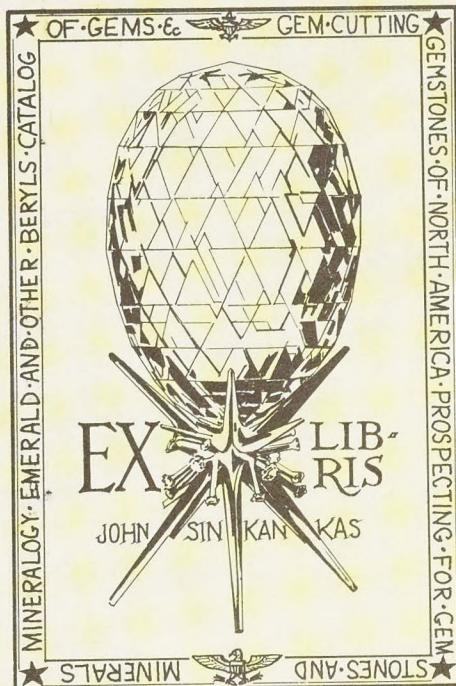


HOFFMANN

ANNOT. LIST  
CANADIAN  
MINERALS

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GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA.  
ALFRED R. C. SELWYN, C.M.G., LL.D., F.R.S., DIRECTOR.

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*Report T.*

## ANNOTATED LIST

OF THE

# MINERALS OCCURRING IN CANADA.

BY

G. CHRISTIAN HOFFMANN, F. Inst, Chem., F.R.S.C.,  
Chemist and Mineralogist to the Survey.



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(Reprinted from the *Transactions of the Royal Society of Canada*, volume  
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The following alphabetically arranged list of minerals embraces all such as have, up to date (July 31st, 1890), been identified, with any degree of certainty, as occurring in Canada. It includes species, varieties and synonyms—the names of species being printed in black-faced type. Doubtful species; such as have been shown on reëxamination not to be good species; those requiring further investigation; and one or two, the occurrence of which in Canada has not been placed beyond all doubt, are enclosed in brackets—the note to each of these particular minerals explaining for which of the foregoing reasons it has been thus distinguished. It would have been foreign to the present intention to have enumerated all the localities of occurrence of each particular mineral. Hence it is only in some few instances—those of the more rarely occurring,—that this has been done. In the case of those of more frequent occurrence, the principal localities where they are found are, not infrequently, for the most part given; whilst in instances of very general occurrence, mention is sometimes merely made of those places where the mineral has been met with in its most interesting form. In the preparation of this list the writer has freely availed himself of the writings of Dr. T. Sterry Hunt, Professor E. J. Chapman and the late Professor H. How; but more especially of those of Dr. Hunt, whose extended and important contributions to the mineralogy of Canada may indeed be said to form the basis upon which the present work has been constructed.

\* The notes which there appear under "Addenda" have here been incorporated with the others.

## ABBREVIATIONS.

AM. JOURN. SCI.—American Journal of Science and Arts.

ANN. REP. GEOL. CAN.—Annual Reports of the Geological and Natural History Survey of Canada (commencing 1855). Montreal.

CAN. JOURN.—Canadian Journal of Industry, Science and Art. Toronto.

CAN. NAT.—Canadian Naturalist and Quarterly Journal of Science. Montreal.

CAN. REC. SCR.—Canadian Record of Science. Montreal.

DANA, MIN.—A System of Mineralogy; by J. D. Dana, aided by G. J. Brush. 5th ed. New York, 1871—with three appendices, bringing the work up to 1882.

ED. N. PHIL. JOUR.—Edinburgh New Philosophical Journal. Edinburgh.

GEOL. CAN.—Geology of Canada (Report of progress from its commencement to 1863.) Montreal, 1863.

JOURN. CHEM. SOC.—Journal of the Chemical Society, London.

MIN. N. S.—Mineralogy of Nova Scotia; by H. How. Halifax, 1869.

PHIL. MAG.—The London, Edinburgh and Dublin Philosophical Magazine and Journal of Science. London.

REP. GEOL. CAN.—Reports of Progress of the Geological Survey of Canada (years 1863-1884, inc.=14 vols.). Montreal.

TRANS. ROY. SOC. CAN.—Proceedings and Transactions of the Royal Society of Canada. Montreal.

TRANS. N. S. INST.—Proceedings and Transactions of the Nova Scotian Institute of Natural Science. Halifax.

TSCH. MIN. MITTH.—Tschermak Mineralogische Mittheilungen. Vienna.

VAR.—Variety of.

SYN.—Synonym of.

ANAL.—Analysis.

## LIST OF MINERALS.

Acadialite, <sup>1</sup> .....	<i>var.</i> Chabazite.
<b>Acmite,</b> <sup>2</sup> .....	—
Actinolite, <sup>3</sup> .....	<i>var.</i> Amphibole.
Agalmatolite, <sup>4</sup> .....	<i>var.</i> Pinite.
Agate, <sup>5</sup> .....	<i>var.</i> Quartz.
Alabaster, <sup>6</sup> .....	<i>var.</i> Gypsum.
Albertite, <sup>7</sup> .....	near Asphaltum.

<b>Albite,</b> <sup>8</sup>	.....	—
<b>Allanite,</b> <sup>9</sup>	.....	—
Almandite, <sup>10</sup>	.....	<i>var.</i> Garnet.
Alum. Native,	.....	<i>syn.</i> Kalinite.
“ Feather,	.....	<i>syn.</i> Halotrichite.
“ Iron,	.....	<i>syn.</i> Halotrichite.
“ Magnesium,	.....	<i>syn.</i> Pickeringite.
<b>Alunite,</b> <sup>11</sup>	.....	—
<b>Alunogen,</b> <sup>12</sup>	.....	—
Amazon-stone, <sup>13</sup>	.....	<i>var.</i> Microcline.
Amethyst, <sup>14</sup>	.....	<i>var.</i> Quartz.
Amianthus.	.....	<i>syn.</i> Asbestus.
Ammonium chloride.	.....	= Sal-ammoniac.
<b>Amphibole,</b> <sup>15</sup>	.....	—
<b>Analcite,</b> <sup>16</sup>	.....	—
Anatase	.....	<i>syn.</i> Octahedrite.
<b>Andalusite,</b> <sup>17</sup>	.....	—
<b>Andesite,</b> <sup>18</sup>	.....	—
Andradite, <sup>19</sup>	.....	<i>var.</i> Garnet.
<b>Anhydrite,</b> <sup>20</sup>	.....	—
[Animikite], <sup>21</sup>	.....	—
<b>Ankerite,</b> <sup>22</sup>	.....	—
<b>Anorthite,</b> <sup>23</sup>	.....	—
Anthracite, <sup>24</sup>	.....	<i>var.</i> Mineral coal.
Anthraxolite, <sup>25</sup>	.....	near Asphaltum?
Antimonite	.....	<i>syn.</i> Stibnite.
<b>Antimony</b> , Native, <sup>26</sup>	.....	—
“ blonde	.....	<i>syn.</i> Kermesite.
“ bloom	.....	<i>syn.</i> Valentinite.
“ glance	.....	<i>syn.</i> Stibnite.
“ Grey	.....	<i>syn.</i> Stibnite.
“ oxide	.....	= Senarmontite, Valentinite.
“ oxy-sulphide	.....	= Kermesite.
“ Red	.....	<i>syn.</i> Kermesite.
“ sulphide	.....	= Stibnite.
<b>Apatite,</b> <sup>27</sup>	.....	—
<b>Aphrodite,</b> <sup>28</sup>	.....	—
<b>Apophyllite,</b> <sup>29</sup>	.....	—
<b>Argentite,</b> <sup>30</sup>	.....	—
<b>Arquerite,</b> <sup>31</sup>	.....	—
<b>Arragonite,</b> <sup>32</sup>	.....	—
<b>Arsenic</b> , Native, <sup>33</sup>	.....	—

Arsenical copper.....	<i>syn.</i> Domeykite.
“ nickel.....	<i>syn.</i> Niccolite.
“ pyrites.....	<i>syn.</i> Arsenopyrite.
Arsenide of platinum.....	= Sperrylite.
<b>Arsenopyrite,</b> <sup>34</sup> .....	—
Asbestus, <sup>35</sup> .....	<i>var.</i> Amphibole and Pyroxene.
<b>Asphaltum,</b> <sup>36</sup> .....	—
Augite, <sup>37</sup> .....	<i>var.</i> Pyroxene.
<b>Axinite,</b> <sup>38</sup> .....	—
<b>Azurite,</b> <sup>39</sup> .....	—
<b>Barite,</b> <sup>40</sup> .....	—
Barium carbonate.....	= Witherite.
“ sulphate.....	= Barite.
Barytes.....	<i>syn.</i> Barite.
<b>Berthierite,</b> <sup>41</sup> .....	—
<b>Beryl,</b> <sup>42</sup> .....	—
<b>Biotite,</b> <sup>43</sup> .....	—
<b>Bismuth,</b> Native, <sup>44</sup> .....	—
“ carbonate .....	= Bismutite.
“ glance.....	<i>syn.</i> Bismuthinite.
“ sulphide.....	= Bismuthinite.
<b>Bismuthinite,</b> <sup>45</sup> .....	—
<b>Bismutite,</b> <sup>46</sup> .....	—
Bitter-spar.....	<i>var.</i> Dolomite.
Bitumen.....	<i>syn.</i> Asphaltum.
Bituminous coal, <sup>47</sup> .....	<i>var.</i> Mineral coal.
Black copper.....	<i>syn.</i> Melaconite.
Black lead.....	<i>syn.</i> Graphite.
Blende .....	<i>syn.</i> Sphalerite.
Blood-stone.....	<i>syn.</i> Heliotrope.
Blue iron earth.....	<i>syn.</i> Vivianite.
Blue malachite.....	<i>syn.</i> Azurite.
Bog iron-ore, <sup>48</sup> .....	<i>var.</i> Limonite
Bog manganese.....	<i>var.</i> Wad.
<b>Bornite,</b> <sup>49</sup> .....	—
<b>Bouronite,</b> <sup>277</sup> .....	—
Brown hematite.....	<i>syn.</i> Limonite.
[Bytownite], <sup>50</sup> .....	—
Cacholong, <sup>51</sup> .....	<i>var.</i> Opal.
[Cacoclasite], <sup>52</sup> .....	—
<b>Cacoxenite,</b> <sup>53</sup> .....	—
Cairngorm stone, <sup>231</sup> .....	<i>var.</i> Quartz.

Calcareous spar .....	<i>syn.</i> Calcite.
“ tufa, <sup>54</sup> .....	<i>var.</i> Travertine.
<b>Calcite,</b> <sup>55</sup> .....	—
“ Fœtid, <sup>56</sup> .....	<i>var.</i> Calcite.
Calcium carbonate.....	= Calcite.
“ fluoride.....	= Fluorite.
“ phosphate.....	Apatite.
“ silicate.....	Wollastonite.
“ sulphate.....	= Anhydrite, Gypsum.
<b>Cancrinite,</b> <sup>57</sup> .....	—
Cannel coal, <sup>58</sup> .....	<i>var.</i> Mineral coal.
Capillary pyrites.....	<i>syn.</i> Millerite.
Carnelian, <sup>59</sup> .....	<i>var.</i> Chalcedony.
<b>Cassiterite,</b> <sup>60</sup> .....	—
<b>Celestite,</b> <sup>61</sup> .....	—
<b>Centrallassite,</b> <sup>62</sup> .....	—
<b>Cerussite,</b> <sup>63</sup> .....	—
<b>Chabazite,</b> <sup>64</sup> .....	—
Chalcedony, <sup>65</sup> .....	<i>var.</i> Quartz.
<b>Chalcocite,</b> <sup>66</sup> .....	—
<b>Chalcopyrite,</b> <sup>67</sup> .....	—
Chert.....	<i>syn.</i> Hornstone.
Chiastolite, <sup>68</sup> .....	<i>var.</i> Andalusite.
Chlorite, <sup>69</sup> .....	(Penninite).
<b>Chloritoid,</b> <sup>70</sup> .....	—
<b>Chondrodite,</b> <sup>71</sup> .....	—
Chromic iron.....	<i>syn.</i> Chromite.
Chromiferous garnet, <sup>72</sup> .....	<i>var.</i> Garnet.
“ mica, <sup>165</sup> .....	<i>var.</i> Mica.
<b>Chromite,</b> <sup>73</sup> .....	—
<b>Chrysocolla,</b> <sup>74</sup> .....	—
<b>Chrysolite,</b> <sup>75</sup> .....	—
Chrysotile, <sup>76</sup> .....	<i>var.</i> Serpentine.
<b>Cinnabar,</b> <sup>77</sup> .....	—
Cinnamon stone.....	<i>syn.</i> Essonite.
Clay iron-stone, <sup>78</sup> .....	<i>var.</i> Siderite.
Clintonite .....	<i>syn.</i> Seybertite.
Coal, bituminous.....	<i>var.</i> Mineral coal.
Cobalt, arsenate.....	= Erythrite.
“ arsenide.....	= Smaltite.
“ bloom.....	<i>syn.</i> Erythrite.
Coccolite, <sup>79</sup> .....	<i>var.</i> Pyroxene.
<b>[Cookeite],</b> <sup>80</sup> .....	—

<b>Copper</b> , Native, <sup>81</sup> .....	—
" arsenide.....	= Domeykite.
" Black.....	= syn. Melaconite.
" carbonate .....	= Azurite, Malachite.
" Grey.....	= syn. Tetrahedrite.
" oxide.....	= Cuprite, Melaconite.
" silicate.....	= Chrysocolla.
" sulphide.....	= Chalcocite, Covellite.
" Vitreous.....	= syn. Chalcocite.
Copper glance.....	= syn. Chalcocite.
Copper nickel.....	= syn. Niccolite.
Copper ore, Purple.....	= syn. Bornite.
" Red.....	= syn. Cuprite.
" Yellow .....	= syn. Chalcopyrite.
Copper pyrites.....	= syn. Chalcopyrite.
Coracite, <sup>82</sup> .....	= var. Uraninite.
<b>Corundum</b> , <sup>83</sup> .....	—
<b>Covellite</b> , <sup>84</sup> .....	—
<b>Cryptomorphite</b> , <sup>85</sup> .....	—
<b>Cuprite</b> , <sup>86</sup> .....	—
<b>Cyanite</b> , <sup>87</sup> .....	—
<b>Dawsonite</b> , <sup>88</sup> .....	—
Diallage, <sup>89</sup> .....	= var. Pyroxene.
Diopside, <sup>90</sup> .....	= var. Pyroxene.
Disthene.....	= syn. Cyanite.
Dog-tooth-spar, <sup>91</sup> .....	= var. Calcite.
<b>Dolomite</b> , <sup>92</sup> .....	—
<b>Domeykite</b> , <sup>93</sup> .....	—
Dysyntribite .....	= syn. Gieseckite.
Elaeolite, <sup>94</sup> .....	= var. Nephelite.
<b>Epidote</b> , <sup>95</sup> .....	—
<b>Epistilbite</b> , <sup>96</sup> .....	—
<b>Epsomite</b> , <sup>97</sup> .....	—
Epsom salt.....	= syn. Epsomite.
Erubescite .....	= syn. Bornite.
<b>Erythrite</b> , <sup>98</sup> .....	—
Essonite, <sup>99</sup> .....	= var. Grossularite.
<b>Fahlunite</b> , <sup>100</sup> .....	—
[Fassaita], <sup>101</sup> .....	= syn. Augite.
Feather alum.....	= syn. Halotrichite.
Felspar, Albite.....	—
" Andesite.....	—
" Anorthite.....	—

Felspar, Labradorite.....	—
“ Microcline.....	—
“ Oligoclase.....	—
“ Orthoclase.....	—
<b>Fluorite,</b> <sup>102</sup> .....	—
Fluor-spar.....	<i>syn.</i> Fluorite.
Fœtid calcite, <sup>56</sup> .....	<i>var.</i> Calcite.
Freibergite, <sup>103</sup> .....	<i>var.</i> Tetrahedrite.
Galena.....	<i>syn.</i> Galenite.
<b>Calenite,</b> <sup>104</sup> .....	—
<b>Garnet,</b> <sup>105</sup> .....	—
“ Almandite.....	—
“ Andradite.....	—
“ Chromiferous.....	—
“ Grossularite.....	—
“ Spessartite .....	—
<b>Centhite,</b> <sup>106</sup> .....	—
Gieseckite, <sup>107</sup> .....	<i>var.</i> Pinite.
Glauber Salt.....	<i>syn.</i> Mirabilite.
<b>Clauconite,</b> <sup>108</sup> .....	—
<b>Cmelinite,</b> <sup>109</sup> .....	—
<b>Cold,</b> <sup>110</sup> .....	—
<b>Cothite,</b> <sup>111</sup> .....	—
Graphic tellurium.....	<i>syn.</i> Sylvanite.
<b>Graphite,</b> <sup>112</sup> .....	—
Green malachite.....	<i>syn.</i> Malachite.
Green vitrol.....	<i>syn.</i> Melanterite.
Grey antimony.....	<i>syn.</i> Stibnite.
Grey copper.....	<i>syn.</i> Tetrahedrite.
Grossularite, <sup>113</sup> .....	<i>var.</i> Garnet.
<b>Cypsum,</b> <sup>114</sup> .....	—
<b>Cyrolite,</b> <sup>115</sup> .....	—
<b>Halite,</b> <sup>116</sup> .....	—
<b>Halotrichite,</b> <sup>117</sup> .....	—
Heavy-spar.....	<i>syn.</i> Barite.
Heliotrope, <sup>118</sup> .....	<i>var.</i> Quartz.
<b>Hematite,</b> <sup>119</sup> .....	—
“ Brown .....	<i>syn.</i> Limonite.
<b>Heulandite,</b> <sup>120</sup> .....	—
Hornblende, <sup>121</sup> .....	<i>var.</i> Amphibole.
Hornstone, <sup>122</sup> .....	<i>var.</i> Quartz.
<b>Howlite,</b> <sup>123</sup> .....	—
<b>Humboldtine,</b> <sup>124</sup> .....	—

[Huntelite],	<sup>21</sup>	—
Huronite,	<sup>125</sup>	—
Hyacinth,	<sup>126</sup>	<i>var.</i> Zircon.
Hyalite,	<sup>278</sup>	<i>var.</i> Opal.
<b>Hypersthene,</b>	<sup>127</sup>	—
Iceland-spar,	<sup>128</sup>	<i>var.</i> Calcite.
Idocrase.		<i>syn.</i> Vesuvianite.
Ilmenite,	<sup>129</sup>	<i>var.</i> Menaccanite.
<b>[Ilvaite],</b>	<sup>130</sup>	—
Infusorial earth,	<sup>131</sup>	= Earthy tripolite.
<b>Iridosmine,</b>	<sup>132</sup>	—
Iron alum.		<i>syn.</i> Halotrichite.
Iron, Meteoric.		—
" carbonate.		= Siderite.
" chromate.		= Chromite.
" ochre,	<sup>133</sup>	<i>var.</i> Hematite, Limonite.
" oxalate.		= Humboldtine.
" oxides.		= Göthite, Hematite, Limonite, Magnetite, Martite.
" phosphate.		= Vivianite.
" silicate.		= Ilvaite.
" Spathic.		<i>syn.</i> Siderite.
" sulphate.		= Melanterite.
" sulphide.		= Pyrite, Pyrrhotite, Marcasite.
" tungstate.		= Wolframite.
Iron ore, Magnetic.		<i>syn.</i> Magnetite.
" Micaceous.		<i>var.</i> Hematite.
" Specular.		<i>var.</i> Hematite.
" Titanic.		<i>syn.</i> Menaccanite.
Iron pyrites.		<i>syn.</i> Pyrite.
" Magnetic.		<i>syn.</i> Pyrrhotite.
" White.		<i>syn.</i> Marcasite.
Iron sand,	<sup>134</sup>	—
Ironstone, Clay.		<i>var.</i> Siderite.
Iserite,	<sup>135</sup>	<i>var.</i> Menaccanite.
Jade.		<i>syn.</i> Nephrite.
[Jamesonite],	<sup>136</sup>	—
Jasper,	<sup>137</sup>	<i>var.</i> Quartz.
<b>Kalinite,</b>	<sup>138</sup>	—
Kämmererite,	<sup>139</sup>	<i>var.</i> Penninite.
<b>Kaolinite,</b>	<sup>140</sup>	—

<b>Kermesite,</b> <sup>141</sup>	.....	—
<b>Labradorite,</b> <sup>142</sup>	.....	—
<b>Laumontite,</b> <sup>143</sup>	.....	—
<b>Lazulite,</b> <sup>144</sup>	.....	—
<b>Lead, Native,</b> <sup>145</sup>	.....	—
" carbonate.....	= Cerussite.	
" sulphide.....	= Galenite.	
<b>Ledererite</b> .....	<i>syn.</i> Gmelinite.	
<b>Lederite</b> .....	<i>syn.</i> Titanite.	
<b>Lepidomelane,</b> <sup>146</sup>	.....	—
<b>Lignite,</b> <sup>147</sup>	.....	<i>var.</i> Mineral coal.
<b>Limonite,</b> <sup>148</sup>	.....	—
<b>Loganite,</b> <sup>149</sup>	.....	<i>var.</i> Penninite.
[Louisite], <sup>150</sup>	.....	—
[Macfarlinite], <sup>21</sup>	.....	—
<b>Macle</b> .....	<i>syn.</i> Chiastolite.	
<b>Magnesite,</b> <sup>151</sup>	.....	—
Magnesium alum.....	<i>syn.</i> Pickeringite.	
Magnesium carbonate.....	= Magnesite.	
" silicate.....	= Aphrodite, Chondro- dite, Serpentine, Tale.	
" sulphate.....	= Epsomite.	
Magnetic iron ore.....	Magnetite.	
Magnetic pyrites.....	<i>syn.</i> Pyrrhotite.	
<b>Magnetite,</b> <sup>152</sup>	.....	—
<b>Malachite,</b> <sup>153</sup>	.....	—
Malacolite, <sup>154</sup>	.....	<i>var.</i> Pyroxene.
Maltha.....	<i>syn.</i> Pittasphalt.	
Manganese-spar.....	<i>syn.</i> Rhodochrosite.	
Manganese, Bog.....	<i>var.</i> Wad.	
" oxide .....	= Manganite, Psilome- lane, Pyrolusite.	
<b>Manganite,</b> <sup>155</sup>	.....	—
Manganosiderite .....	<i>syn.</i> Rhodochrosite.	
Marble.....	<i>var.</i> Calcite.	
<b>Marcasite,</b> <sup>156</sup>	.....	—
Martite, <sup>157</sup>	.....	<i>var.</i> Hematite.
<b>Melaconite,</b> <sup>158</sup>	.....	—
<b>Melanterite,</b> <sup>159</sup>	.....	—
<b>Menaccanite,</b> <sup>276</sup>	.....	—
<b>Meneghinite,</b> <sup>160</sup>	.....	—
Mercury sulphide.....	= Cinnabar.	
Mesole, <sup>161</sup>	.....	<i>var.</i> Thomsonite.

<b>Mesolite,</b>	<sup>162</sup>	—
Meteoric iron,	<sup>163</sup>	<i>var.</i> iron.
Micaceous iron ore,	<sup>164</sup>	<i>var.</i> Hematite.
Mica, Biotite.....		—
" Chromiferous,	<sup>165</sup>	—
" Lepidomelane .....		—
" Muscovite .....		—
" Phlogopite.....		—
" Rose-colored,	<sup>177</sup>	—
Michel-Lévyte,	<sup>279</sup>	= Barite.
<b>Microcline,</b>	<sup>166</sup>	—
<b>Millerite,</b>	<sup>167</sup>	—
<b>Mineral Coal,</b>	<sup>168</sup>	—
" oil .....		<i>syn.</i> Petroleum.
" pitch.....		<i>syn.</i> Asphaltum.
" resin,	<sup>169</sup>	—
" tar,	<sup>170</sup>	<i>syn.</i> Pittasphalt.
<b>Mirabilite,</b>	<sup>171</sup>	—
Mispickel.....		<i>syn.</i> Arsenopyrite.
<b>Molybdenite,</b>	<sup>172</sup>	—
Molybdenum oxide.....		= Molybdite.
" sulphide .....		= Molybdenite.
Molybdic ochre.....		<i>syn.</i> Molybdite.
<b>Molybdite,</b>	<sup>173</sup>	—
<b>Monazite,</b>	<sup>174</sup>	—
<b>Mordenite,</b>	<sup>175</sup>	—
<b>Morenosite,</b>	<sup>176</sup>	—
Mountain cork,	<sup>35</sup>	<i>var.</i> Asbestus.
" leather,	<sup>35</sup>	<i>var.</i> Asbestus.
<b>Muscovite,</b>	<sup>177</sup>	—
Nail-head-spar,	<sup>178</sup>	<i>var.</i> Calcite.
Naphtha .....		<i>syn.</i> Petroleum.
Natroborocalcite .....		<i>syn.</i> Ulexite.
<b>Natrolite,</b>	<sup>179</sup>	—
<b>Nephelite,</b>	<sup>180</sup>	—
Nephrite,	<sup>181</sup>	<i>var.</i> Amphibole.
<b>Niccolite,</b>	<sup>182</sup>	—
Nickel, Arsenical.....		<i>syn.</i> Niccolite.
" arsenide .....		= Niccolite.
" silicate .....		= Genthite.
" sulphate.....		= Morenosite.
" sulphide.....		= Millerite, Polydymite.

Nickel, vitriol.....	<i>syn.</i> Morenosite.
Nickel-Gymnite.....	<i>syn.</i> Genthite.
<b>Nitre,</b> <sup>183</sup> .....	—
Obsidian, <sup>184</sup> .....	—
<b>Octahedrite,</b> <sup>185</sup> .....	—
<b>Oligoclase,</b> <sup>186</sup> .....	—
Olivine.....	<i>syn.</i> Chrysolite.
[Ontariolite], <sup>187</sup> .....	—
<b>Opal,</b> <sup>188</sup> .....	—
<b>Orthoclase,</b> <sup>189</sup> .....	—
Osmiridium.....	<i>syn.</i> Iridosmine.
Oxalite.....	<i>syn.</i> Humboldtine.
Pargasite, <sup>190</sup> .....	<i>var.</i> Amphibole.
Paulite, <sup>127</sup> .....	<i>syn.</i> Hypersthene.
Pearl-spar, <sup>191</sup> .....	<i>var.</i> Dolomite.
<b>Pectolite,</b> <sup>192</sup> .....	—
Peridot.....	<i>syn.</i> Chrysolite.
Peristerite, <sup>193</sup> .....	<i>var.</i> Albite.
Perthite, <sup>194</sup> .....	—
<b>Petalite,</b> <sup>195</sup> .....	—
<b>Petroleum,</b> <sup>196</sup> .....	—
<b>Phlogopite,</b> <sup>197</sup> .....	—
<b>Pickeringite,</b> <sup>198</sup> .....	—
Picrolite, <sup>199</sup> .....	<i>var.</i> Serpentine.
Pitchblende.....	<i>syn.</i> Uraninite.
Pitchstone, <sup>200</sup> .....	—
<b>Pittasphalt,</b> <sup>170</sup> .....	—
<b>Platinum,</b> Native, <sup>201</sup> .....	—
“ arsenide .....	= Sperrylite.
Plumbago .....	<i>syn.</i> Graphite.
<b>Polydymite,</b> <sup>202</sup> .....	—
Potassium alum.....	<i>syn.</i> Kalinite.
“ nitrate.....	= Nitre.
Prase, <sup>280</sup> .....	<i>var.</i> Quartz.
<b>Prehnite,</b> <sup>203</sup> .....	—
Pseudomorphous quartz, <sup>204</sup> .....	—
<b>Psilomelane,</b> <sup>205</sup> .....	—
Purple copper-ore.....	<i>syn.</i> Bornite.
Pyrallolite, <sup>206</sup> .....	<i>var.</i> Tale.
<b>Pyrite,</b> <sup>207</sup> .....	—
Pyrites, Arsenical.....	<i>syn.</i> Arsenopyrite.
“ Capillary.....	<i>syn.</i> Millerite.
“ Copper.....	<i>syn.</i> Chalcopyrite.

Pyrites, Iron.....	<i>syn.</i> Pyrite.
"    Magnetic.....	<i>syn.</i> Pyrrhotite.
"    White iron.....	<i>syn.</i> Marcasite.
<b>Pyrolusite,</b> <sup>208</sup> .....	—
<b>Pyroxene,</b> <sup>209</sup> .....	—
<b>Pyrrhotite,</b> <sup>210</sup> .....	—
<b>Quartz,</b>	
" <i>var.</i> Agate.....	—
"    Amethyst.....	—
"    Cairngorm stone.....	—
"    Carnelian.....	—
"    Chalcedony.....	—
"    Heliotrope.....	—
"    Hornstone.....	—
"    Jasper.....	—
"    Prase.....	—
"    Pseudomorphous .....	—
"    Rock crystal.....	—
"    Rose.....	—
"    Smoky .....	—
Raphilite .....	<i>syn.</i> Tremolite.
Red antimony.....	<i>syn.</i> Kermesite.
"    copper ore.....	<i>syn.</i> Cuprite.
"    hematite.....	<i>syn.</i> Hematite.
Rensellaerite.....	<i>syn.</i> Pyrallolite.
Retinalite, <sup>211</sup> .....	<i>var.</i> Serpentine.
Rhodochrome.....	<i>syn.</i> Kämmererite.
<b>Rhodochrosite,</b> <sup>212</sup> .....	—
<b>Ripidolite,</b> <sup>213</sup> .....	—
Rock crystal, <sup>214</sup> .....	<i>var.</i> Quartz.
Rock salt.....	<i>syn.</i> Halite.
Rose quartz, <sup>215</sup> .....	<i>var.</i> Quartz.
<b>Rutile,</b> <sup>216</sup> .....	—
Sagenite, <sup>217</sup> .....	<i>var.</i> Rutile.
Sahlite, <sup>218</sup> .....	<i>var.</i> Pyroxene.
<b>Sal-ammoniac,</b> <sup>219</sup> .....	—
Salt, Common.....	<i>syn.</i> Halite.
<b>Samarskite,</b> <sup>220</sup> .....	—
<b>Saponite,</b> <sup>221</sup> .....	—
Scapolite.....	<i>syn.</i> Wernerite.
Schorl.....	<i>syn.</i> Tourmaline.
Selenite, <sup>222</sup> .....	<i>var.</i> Gypsum.
<b>Senarmontite,</b> <sup>223</sup> .....	—

<b>Serpentine,</b> <sup>224</sup> .....	—
<b>Seybertite,</b> <sup>225</sup> .....	—
<b>Siderite,</b> <sup>226</sup> .....	—
Sideroplesite, <sup>227</sup> .....	<i>var.</i> Siderite.
Silicified wood, <sup>228</sup> .....	<i>var.</i> Quartz.
Silicoborocalcite .....	<i>syn.</i> Howlite.
Silver glance.....	<i>syn.</i> Argentite.
<b>Silver, Native,</b> <sup>229</sup> .....	—
“ antimonide.....	= [Animikite].
“ arsenide.....	= [Huntelite].
“ sulphide .....	= Argentite.
<b>Smaltite,</b> <sup>230</sup> .....	—
Smoky quartz, <sup>231</sup> .....	<i>var.</i> Quartz.
Soapstone, <sup>232</sup> .....	<i>var.</i> Tale.
<b>Sodalite,</b> <sup>233</sup> .....	—
Sodium chloride.....	= Halite.
“ sulphate.....	= Mirabilite.
Spathic iron.....	<i>syn.</i> Siderite,
Specular iron, <sup>234</sup> .....	<i>var.</i> Hematite.
<b>Sperrylite,</b> <sup>235</sup> .....	—
Spessartite, <sup>236</sup> .....	<i>var.</i> Garnet.
Sphaerostilbite, <sup>237</sup> .....	<i>var.</i> Stilbite.
<b>Sphalerite,</b> <sup>238</sup> .....	—
Sphene.....	<i>syn.</i> Titanite.
<b>Spinel,</b> <sup>239</sup> .....	—
<b>Spodumene,</b> <sup>240</sup> .....	—
<b>Staurolite,</b> <sup>241</sup> .....	—
Stearite, <sup>242</sup> .....	<i>var.</i> Tale.
Steeleite, <sup>243</sup> .....	<i>var.</i> Mordenite.
Stellarite, <sup>244</sup> .....	—
<b>Stibnite,</b> <sup>245</sup> .....	—
<b>Stilbite,</b> <sup>246</sup> .....	—
<b>Strontianite,</b> <sup>247</sup> .....	—
Strontium carbonate.....	= Strontianite.
“ sulphate.....	= Celestite.
<b>Sulphatite,</b> <sup>248</sup> .....	—
<b>Sulphur, Native,</b> <sup>249</sup> .....	—
Sulphuric acid.....	= Sulphatite.
<b>Sylvanite,</b> <sup>250</sup> .....	—
Tubular-spar .....	<i>syn.</i> Wollastonite.
<b>Tachylite,</b> <sup>251</sup> .....	—
<b>Talc,</b> <sup>252</sup> .....	—
Tellurium. Graphic.....	<i>syn.</i> Sylvanite.

<b>Tennantite,</b>	<sup>253</sup>	—
Tenorite.....		<i>syn.</i> Melaconite.
<b>Tetrahedrite,</b>	<sup>254</sup>	—
<b>Thomsonite,</b>	<sup>255</sup>	—
<b>Titanite,</b>	<sup>256</sup>	—
Titanium oxide.....		= Octahedrite, Rutile.
Tin oxide.....		= Cassiterite.
Tinstone.....		<i>syn.</i> Cassiterite.
<b>Tourmaline,</b>	<sup>257</sup>	—
Travertine, <sup>258</sup>		<i>var.</i> Calcite.
Tremolite, <sup>259</sup>		<i>var.</i> Amphibole.
Tripolite, <sup>181</sup>		<i>var.</i> Opal.
<b>Turgite,</b>	<sup>260</sup>	—
<b>Ulexite,</b>	<sup>261</sup>	—
<b>Uraconite,</b>	<sup>262</sup>	—
Uralite, <sup>263</sup>		<i>var.</i> Amphibole.
<b>Uraninite,</b>	<sup>264</sup>	—
Uranium oxide.....		= Uraninite.
“ sulphate.....		= Uraconite.
Uranochre.....		<i>syn.</i> Uraconite.
<b>Valentinite,</b>	<sup>265</sup>	—
<b>Vesuvianite,</b>	<sup>266</sup>	—
Vitreous copper.....		<i>syn.</i> Chalcocite.
“ silver.....		<i>syn.</i> Argentite.
<b>Vivianite,</b>	<sup>267</sup>	—
<b>Wad,</b>	<sup>268</sup>	—
<b>Wernerite,</b>	<sup>269</sup>	—
Wheel-ore.....		<i>syn.</i> Bournonite.
White antimony.....		<i>syn.</i> Valentinite.
“ iron pyrites.....		<i>syn.</i> Marcasite.
“ lead ore.....		<i>syn.</i> Cerussite.
Wilsonite, <sup>270</sup>		<i>var.</i> Pinite.
[Winkworthite], <sup>271</sup>		—
<b>Witherite,</b>	<sup>272</sup>	—
<b>Wolframite,</b>	<sup>273</sup>	—
<b>Wollastonite,</b>	<sup>274</sup>	—
Yellow copper ore .....		<i>syn.</i> Chalcopyrite.
Zinc blende.....		<i>syn.</i> Sphalerite.
“ sulphide.....		= Sphalerite.
<b>Zircon,</b>	<sup>275</sup>	—

## REMARKS ON FOREGOING LIST.

1. ACADIALITE—The flesh-red, brownish-red, and yellowish-red varieties of chabazite (which have been named Acadialite) are found at Partridge Island, Swan Creek and Two Islands (Cumberland Co.), in the province of Nova Scotia.
2. ACMITE—Forms an important constituent of some of the nephelene-seyenites of Montreal (Hochelaga Co.) and Belœil (Rouville Co.), in the province of Quebec. Anal., B. J. Harrington, *Trans. Roy. Soc. Can.*, vol. i, sec. iii, p. 81, 1882 and 1883.
3. ACTINOLITE—A bed of actinolite, mingled with an asbestosiform serpentine and talc, occurs in the township of Bolton (Brome Co.), and a finely fibrous variety, without admixture, constitutes a bed in St. Francis (Beauce Co.), province of Quebec.
4. AGALMATOLITE—Of a greenish-white to olive-green color occurs in layers in an indurated clay-slate at St. Nicholas (Lévis Co.); of a honey-yellow color, forming a thin bed in clay-slate in the parish of St. Francis (Beauce Co.), and of an amber-yellow, with chloritic slates, on Lake Memphramagog (Stanstead Co.), province of Quebec. Analyses, T. S. Hunt, *Geol. Can.*, 1863, pp. 484, 485.
5. AGATE—Many beautiful varieties are found in the trap regions of Nova Scotia: as on the shore extending from Sandy Cove to the head of St. Mary's Bay (Digby Co.); near Cape Blomidon, in large blocks (King's Co.), and fine moss agates are met with near Cape Split and at Scot's Bay (King's Co.), also at Two Islands (Cumberland Co.). Agates are found in abundance in the amygdaloids of Lake Superior, and sometimes of considerable size and beauty. They abound in rolled masses on the beaches of Michipicoten and St. Ignace Islands, at Thunder Bay and elsewhere along the shore of this lake—province of Ontario.
6. ALABASTER—Considerable masses of a very beautiful snow-white gypsum or alabaster are met with in the gypsum quarries of Hillsborough (Albert Co.), in the province of New Brunswick.
7. ALBERTITE—This beautiful mineral has, so far, only been met with in King's, Albert and Westmoreland counties—the most important locality being in the parish of Hillsborough (Albert Co.)—in the province of New Brunswick. It is not found in beds, but in

true cutting veins, which, although at times coincident with the bedding, are as often oblique or at right angles to it. The chief deposits, those of the Albert mines (in Hillsborough), occur in highly bituminous and oil-bearing shales situated near or at the base of the Lower Carboniferous; but, at points not widely separated, veins of the mineral are found penetrating, for short distances, the underlying metamorphic rocks—supposed to be of Huronian age—and the overlying and little disturbed beds of the Millstone grit. The maximum thickness of the vein as first found near the surface was twenty-two feet, that of the smaller veins only a few inches, while the veinlets were often not thicker than a sheet of paper. It is estimated that since its first discovery (by John Duffy in 1849) some 200,000 tons of this material have been raised at the Albert mines. The deposit has, however, now become practically exhausted, and the mine in consequence abandoned. (From information communicated by Professor L. W. Bailey, of the University of New Brunswick.)

8. **ALBITE**—Large cleavable masses of white albite, with quartz and mica, constitute a granite found at the Lake of Three Mountains, on the River Rouge, in the township of Clyde (Ottawa Co.), and a faintly greyish-white almost white albite, exhibiting a fine bluish opalescence, occurs in large fragments in a coarse pegmatite vein—composed of quartz, muscovite, microcline, with occasionally black tourmaline, garnet, etc.—cutting a greyish garnetiferous gneiss in the township of Villeneuve, also in Ottawa county, province of Quebec. See also note to “Peristerite.”
9. **ALLANITE**—Small crystals of this mineral were found, by Dr. T. S. Hunt, in a felspathic rock near Bay St. Paul (Charlevoix Co.), and in a rock composed of labradorite and hypersthene from Lake St. John (Chicoutimi Co.), province of Quebec. Also occurs (Professor E. J. Chapman, Can. Journ., new series, vol. ix, p. 103, 1864), in the form of a narrow vein in granitoid strata at Hollow Lake, the head waters of the South Muskoka, in the province of Ontario.
10. **ALMANDITE**—The red garnet from the Stickeen and Skeena Rivers, as also many of the other red varieties alluded to under “Garnet,” will, most probably, be found to be referable to this variety.
11. **ALUNITE**—A massive, fine granular, light reddish colored alunite, has been met with—associated with a greyish translucent quartz

and specular iron—at New Ireland Road, parish of Alma (Albert Co.), in the province of New Brunswick.

12. **ALUNOGEN**—Has been found, in the form of a crust of from 5 to  $5\frac{1}{2}$  cm. thick, on an old heap of shale at the Scotia mine, Springhill coal-field, Cumberland Co., province of Nova Scotia. Anal., F. D. Adams, Rep. Geol. Can., 1878-79, p. 8 H.
13. **AMAZON-STONE**—Occurs abundantly, and of good color, in the township of Sebastopol (Renfrew Co.), in the province of Ontario. It has also been found in the pegmatite vein, referred to under "Albite," in the township of Villeneuve, and is again met with in the townships of Wakefield and Hull (Ottawa Co.), province of Quebec.
14. **AMETHYST**—Often of great beauty, is found at many places on the shores of Cumberland, King's, Annapolis and Digby counties, Nova Scotia. The best localities are:—Cape Sharp and Partridge Island (Cumberland Co.), Cape Blomidon (King's Co.), and Digby Neck (Digby Co.). Fine specimens occur in veins around Thunder Bay—more especially at Amethyst Harbor, and at the mouth of McKenzie's River—and at other points on the north shore of Lake Superior, province of Ontario.
15. **AMPHIBOLE**—See under "Actinolite," "Asbestus," "Hornblende," "Nephrite," "Pargasite," "Tremolite."
16. **ANALCITE**—Fine specimens of this mineral are found at Cape d'Or, Swan Creek, and Two Islands (Cumberland Co.), also at Cape Blomidon (King's Co.), in the province of Nova Scotia. It has been observed, in association with natrolite, in some of the dykes cutting the Trenton limestone at the reservoir extension, Montreal (Hochelaga Co.), province of Quebec. Also occurs in the amygdaloidal traps of the north shore of Lake Superior, province of Ontario. Anal., B. J. Harrington, Rep. Geol. Can., 1877-78, p. 45 G.
17. **ANDALUSITE**—Occurs in pale flesh-red colored crystals in a fine grained micaceous schist at Moore's Mills (Charlotte Co.), province of New Brunswick. Also found, in somewhat micaceous argillites, on Lake St. Francis (Beaupre Co.), in the province of Quebec. See also note to "Chiastolite."
18. **ANDESITE**—Occurs in large striated cleavable masses of a reddish color, with hypersthene and ilmenite, constituting a rock at

Château Richer (Montmorency Co.), province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 478.

19. **ANDRADITE**—Is found in pale yellowish, honey-yellow, and brownish-yellow colored crystals, imbedded in chalcopyrite; and in yellowish-green colored masses, in association with white fibrous tremolite and dolomite, at the Malaspina copper-mine, north-east side of Texada Island, province of British Columbia.
20. **ANHYDRITE**—Is met with in considerable quantities, constituting beds, in the gypsum deposits of Nova Scotia and New Brunswick.
21. **ANIMIKITE**—**HUNTILITE**—**MACFARLINE**. The minerals thus designated occur at the Silver Islet mine, Lake Superior, province of Ontario. The two first named were described by Dr. H. Wurtz (Eng. Min. Journ., xxvii, pp. 55 and 124, 1879), the last by T. Macfarlane (Can. Nat., 2 ser., vol. iv, p. 463, 1870), the results of whose investigations of the foregoing are given in the Trans. Amer. Inst. Min. Eng., viii, 236, 1880. [The true nature of the individual minerals present in the Silver Islet ores is still to be determined, but there is probably present a silver arsenide (Huntelite), and perhaps also a silver antimonide (animikite) allied to dyscrasite—Dana, Min., App. iii, p. 71, 1882.]
22. **ANKERITE**—This is one of the most plentiful and characteristic of the minerals filling the numerous fissure veins occurring at the base of the southern slope of the Cobequid Mountains, Londonderry, Colchester Co., Nova Scotia. Analyses, H. Louis, Trans. N. S. Inst., vol. v, p. 49, 1879-82.
23. **ANORTHITE**—This felspar is one of the component minerals of the coarsely crystalline intrusive diorite of Yamaska Mountain (Yamaska Co.), in the province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 479.
24. **ANTHRACITE**—Of the Carboniferous system is not known to occur in Canada; there are, however, deposits of this mineral, of Cretaceous age, on the Queen Charlotte Islands—the best known locality being at Cowgitz, on Skidegate channel, at the southern end of Graham Island—province of British Columbia. For reference to analyses, see under “Mineral Coal.”
25. **ANTHRAXOLITE**—This name has been given, by Professor E. J. Chapman, but simply as a convenient term for present use, to the

black combustible coal-like matter which is not unfrequently met with in the provinces of Quebec and Ontario. He describes it as follows:—Black, lustrous, resembling anthracite in general characters, but very brittle. Hardness equals 2.25—2.50; specific gravity, 1.35—1.55. Generally decrepitates when heated. Before the blowpipe, a small fragment loses its lustre, but exhibits no further change. Composition, essentially carbon, with from 3—25 per cent. of volatile matter, including a small amount of moisture, and ash varying from 0—11 per cent. Exhibits under the microscope no trace of organic structure. Dr. T. S. Hunt, in speaking of this material, says, “It can scarcely be doubted but that it has resulted from the slow alteration of liquid bitumen in the fissures of the strata.” This would explain the great variability in the percentage of volatile matter (exclusive of moisture) which is observed in specimens from different localities, the amount of alteration having in some instances proceeded further than in others. It never occurs in true beds like coal, but is found either lining fissures or filling veins and fissures, sometimes several inches in diameter, in the limestones, shales and sandstones, and even in the trap rocks which traverse these. Sometimes it occurs in buttons or drops, forming botryoidal masses. It has been met with in many places in the province of Quebec, viz., on the Island of Orleans, at Quebec and Sillery (Quebec Co.), Point Lévis, and St. Nicholas (Lévis Co.), Lotbinière (Lotbinière Co.), Drummondville (Drummond Co.), Acton (Bagot Co.), in the vicinity of Chatte River in Gaspé, and elsewhere. In the province of Ontario it has been observed filling fissures in the chert beds among the Upper Copper-bearing rocks of Lake Superior. Analyses, T. S. Hunt, Geol. Can., 1863, pp. 524-526.

26. **ANTIMONY, NATIVE**—Occurs in some quantity and in good specimens at the antimony mine in the parish of Prince William (about twenty-five miles from Fredericton), York county, province of New Brunswick. In a lamellar or, more rarely, finely granular form, occurs, in association with stibnite, valentinite, senarmontite and kermesite, accompanied by quartz and a little brown-spar, in veins in argillite in the township of South Ham, Wolfe county, province of Quebec.
27. **APATITE**—The variety fluorapatite is very common in the Laurentian rocks of Canada, where it occurs both in the form of veins and of large irregular shaped deposits or lenticular masses. The most important deposits are in the townships of Buckingham,

Templeton, Portland and Wakefield (Ottawa Co.), in the province of Quebec—but extensive deposits also occur in the townships of North and South Burgess and North Elmsley, in the province of Ontario. This mineral also occurs in connection with crystalline limestone—being found, in the form of olive-green terminated crystals, with rounded angles, together with grains of purple fluorite, and crystals of black spinel, imbedded in a yellowish crystalline limestone, in the township of Ross (Renfrew Co., Ont.); and crystals of blue apatite and quartz are imbedded in a coarsely cleavable, sky-blue calcite at the Calumet Falls in the township of Litchfield (Pontiac Co., Que.). Small hexagonal prisms, sometimes an inch in length and one or two lines in diameter, transparent, of a pink or purple color, with surfaces often dull, and angles rounded, occur, in association with crystals of augite, in an intrusive mass of fine grained, grey dolerite at St. Roch, on the Achigan River, L'Assomption Co., Que. Anal., T. S. Hunt, Rep. Geol. Can., 1863-66, p. 203. On the composition of Canadian apatites, G. C. Hoffmann, Rep. Geol. Can., 1877-78, pp. 1-14 n.

28. **APHRODITE**—Is found filling fissures in the massive pyrallolite of the township of Grenville (Argenteuil Co.), in the province of Quebec. Anal., T. S. Hunt, Geol. Can., 1863, p. 473.
29. **APOPHYLLITE**—Green and white crystals, aggregated in plates or in square prisms, occur at Two Islands and Cape d'Or (Cumberland Co.), Blomidon (King's Co.), and Margaretville (Annapolis Co.), in the province of Nova Scotia. Also, in foliated masses or plates, often of a red color, in association with calcite, on Prince's Location, Spar Island, Lake Superior, province of Ontario.
30. **ARGENTITE**—Occurs, with native silver, chalcocite, sphalerite, etc., in a vein of calcite at Prince's mine; with native silver, in a vein of barite, celestite and calcite, on Jarvis Island; with native silver, sphalerite, and a little galenite and pyrite, in a vein of barite and calcite on McKellar's Island; and with sphalerite, pyrite, niccolite, etc., in a veinstone consisting of calc-spar, bitter-spar and quartz, on Silver Islet, Lake Superior. With native silver, in a gangue of calcite, at the Duncan mine—also at the Rabbit Mountain, Porcupine, Beaver and other mines in the district of Thunder Bay (Lake Superior), province of Ontario.
31. **ARQUERITE**—Is found with alluvial gold upon Vital and Silver Creeks, Omenica district, province of British Columbia. Anal., H. G. Hanks, Dana, Min., App. iii, p. 4, 1882.

32. **ARRAGONITE**—Is met with, in the form of acicular crystals, varying in size from microscopic minuteness to an inch or more in length, lining fissures or cavities in the ankerite or implanted upon barite or calcite, in the ankerite deposits of Londonderry (Colchester Co.), province of Nova Scotia. Has been observed forming stalactites and delicate fibrous masses in a calcareous rock in the township of Tring (Beauce Co.), province of Quebec—and sparingly amongst the Lake Superior traps, province of Ontario.
33. **ARSENIC. NATIVE**,—Is found, in veins, seven miles up Watson Creek, west side of Fraser River, twenty-five miles above Lytton, province of British Columbia. Ann. Rep. Geol. Can., vol. ii, p. 9 t, 1886.
34. **ARSENOPYRITE**—Is of exceedingly common occurrence in the gold-bearing quartz bands of Nova Scotia. Is found according to Dr. Hunt, well crystallized, with galena, in a quartz vein on the Chaudière in St. Francis (Beauce Co.); and still more abundantly in small crystals, in association with galena, in a large vein of quartz on Moulton Hill, near Lennoxville (Sherbrooke Co.), province of Quebec. Occurs in large quantities in quartzose veins in the township of Marmora (Hastings Co.), and it is also met with in the township of Tudor, in the same county, province of Ontario.
35. **ASBESTUS**—A more or less delicately fibrous variety of hornblende has been met with in the townships of Templeton and Buckingham (Ottawa Co.), province of Quebec. In the latter township, mountain cork was found in quantity and in masses of considerable size at the Emerald phosphate mine. Mountain leather has also been met with in this township as well as the Beaver mine in the township of O'Connor, District of Thunder Bay, in the province of Ontario. The fibrous variety of serpentine, which constitutes a large proportion of what is known in commerce as asbestos, occurs in quantity in the Eastern Townships of the province of Quebec.—See under “Chrysotile.”
36. **ASPHALTUM**—Occurs in the vicinity of Oil Creek, in the southern part of the township of Enniskillen (Lambton Co.), province of Ontario, where it forms two layers, of a viscid consistency, known as gum-beds, occupying areas of about an acre, each, in extent, and having a thickness varying from a few inches to two feet. Another bed of bitumen, of from two to four inches in thickness, is met with at Petrolia, in the northern part of the same township. The

material of this bed, which is more solid than that of those just referred to, and mixed with a good deal of earthy matter, is readily separable into thin layers, which are soft and flexible. Very extensive deposits of a bituminous sand-rock occur for great distances along the banks of the lower Athabasca River, Northwest Territory; these are described in Rep. Geol. Can., 1882-84, part CC., and the results of the examination of the material appear in Rep. Geol. Can., 1880-82, p. 3 II.

37. AUGITE—Well defined crystals of black augite are found imbedded in the dolerites of Montreal (Hochelaga Co.), Rougemont (Rouville Co.), and Montarville (Chambly Co.) Mountains, in the province of Quebec. Anal., T. S. Hunt, Geol. Can., 1863, p. 468.
38. AXINITE—Is said by Dr. Bigsby to have been found, in fine crystals, lining a cavity in a boulder of primitive rock at Hawkesbury (Prescott Co.), in the province of Ontario. It has been found *in situ* by Dr. R. Bell, in small veins in trap, on the east coast of Hudson Bay, about one mile and a-half south of the mouth of Little Whale River. Here it occurs, of a purplish-brown color, in association with epidote, imbedded in a matrix of calcite with a little quartz.
39. AZURITE—Has, so far, not been met with in characteristic specimens, but merely as an incrustation on copper-ores, or in the form of stains and small earthy masses in copper-holding rock. Among the many localities where it has been observed, may be mentioned:—The Prince of Wales mine, Upton (Bagot Co.), and at the Black River mine—in a drusy calcite, with sulphurets of copper, in the form of small crystals—St. Flavien (Lotbinière Co.), province of Quebec. With green carbonate of copper at Batchewanung Bay and Prince's mine, Lake Superior, province of Ontario.
40. BARITE—Occurs, sometimes in very beautiful crystalline masses, in numerous irregular veins or pockets in the slates of the East River of the Five Islands (Colchester Co.), Nova Scotia. In a vein cutting Laurentian limestone, in the township of Hull (Ottawa Co.), province of Quebec—and the following localities in the province of Ontario, viz., the townships of Bathurst and North Burgess (Lanark Co.), McNab (Renfrew Co.), Dummer and Galway (Peterborough Co.), and Summerville (Victoria Co.), also—constituting large veins, on Jarvis, McKellar's and Pie Islands, Lake Superior. Red crystals associated with purple fluorite are

found on Iron Island, Lake Nipissing ; and isolated pale reddish-yellow crystals have been found by Professor Chapman (Can. Journ., Nov., 1885) in veins, in the township of Neëbing, near Fort William, Thunder Bay, Lake Superior, and subsequently in other mineral veins in that region.

41. **BERTHIERITE**—Is mentioned (Dana, Minn., p. 86) as occurring near Fredericton, province of New Brunswick. Professor Bailey thinks the locality referred to would most probably be the antimony mine in the parish of Prince William, about twenty-five miles from Fredericton (York Co., N.B.).
42. **BERYL**—Crystals of this mineral, having a diameter of three inches and more, and a length of from twelve to fifteen inches have been met with, by Abbé J. C. K. Laflamme, in the township of Jonquière (Chicoutimi Co.), and it has also been found in the township of Brassard (Berthier Co.), province of Quebec.
43. **BIOTITE**—A dark bottle-green mica from Moore's slide (Roche-Fendue channel) on the Ottawa River, has been referred to this species.
44. **BRISMUTH. NATIVE**,—Was recognized by Professor Chapman in some rolled pieces of quartz from near Echo Lake, on the north-west shore of Lake Huron ; and agreeably with the observations of Dr. Hunt, it also occurs, in traces, in a veinstone in the township of Tudor (Hastings Co.), province of Ontario.
45. **BISMUTHINITE**—Has been met with, in small lamellar and sub-fibrous masses, in a quartz vein at Hill's mine, in the rear of Tudor township, Hastings county, province of Ontario.
46. **BISMUTITE**—Has been recognized, by Dr. Hunt, as occurring in a quartz vein at Hill's mine, in the rear of the township of Tudor, Hastings county, province of Ontario.
47. **BITUMINOUS COAL**—Of the Carboniferous formation occurs in the provinces of New Brunswick and Nova Scotia. In the former, though covering a large surface area, more than two-thirds of the entire extent of the province, the Carboniferous or coal-bearing rocks have afforded as yet but little promise of large or valuable deposits, and with the exception of the beds at Grand Lake in Queen's county, which are about two feet in thickness, no stratum of bituminous coal, sufficiently large or pure to be profitably worked, has as yet been discovered. In the province of Nova

Scotia there are three important coal basins, viz., those of Cape Breton, Pictou and Cumberland counties—the first mentioned occupying an area of at least 190 square miles, with a thickness of not less than 7,000 feet of the Carboniferous strata ; the second occupies an area of only some 22 square miles, but several of the coal seams are of extraordinary thickness ; the area of the Cumberland field is likewise small, but includes several good seams. Coal is not found in the provinces of Quebec and Ontario ; the black combustible coal-like matter referred to under " Anthraxolite," is however met with in small quantity at various localities in both these provinces. In the North-west Territory in the Rocky Mountains, and in the adjacent foot-hills, there are extensive deposits of a bituminous coal which, although of Cretaceous age, is in all respects—physical character and chemical composition—undistinguishable from coal of the Carboniferous, and the same may be said of the coal of the extensive and important deposits, also of Cretaceous age, which exist in various parts of British Columbia. For reference to analyses, see under " Mineral coal."

48. BOG IRON-ORE—Occurs in great abundance at numerous localities in the provinces of Quebec and Ontario. In the former, the most important sites are in the Three Rivers district, or between the Rivers St. Maurice, Batiscan and St. Anne. Other deposits occur in the townships of Stanbridge, Farnham, Simpson, Ascot, Ireland, Eardley, Hull, Templeton—the seigniories of Vaudreuil, Lotbinière Lauzon, St. Vallier, and elsewhere. In Ontario it is met with, in greater or less quantity, in the townships of Charlotteville, Middleton, and Windham (Norfolk Co.), Cambden (Kent Co.), Bastard (Leeds Co.), etc. Analyses, T. S. Hunt, Geol. Can., 1863, p. 510.
49. BORNITE—Occurs, most commonly associated with chalcopyrite and chalcocite, in the townships of Cleveland and Melbourne (Richmond Co.), Acton (Bagot Co.), Leeds and Halifax (Megantic Co.), Sutton (Brome Co.), and elsewhere in this section of the province of Quebec. It has been found at the West Canada mines on Lake Huron, also at some points on Lake Superior, in the province of Ontario—and near the head of Salmon Arm of Jarvis Inlet, and between that inlet and Howe Sound, province of British Columbia.
50. BYTOWNITE—The name given by Dr. Thompson to a greenish white felspathic mineral found in a boulder, near Bytown (now the city of Ottawa), in the province of Ontario,—and which has

since been shown by Zirkel (Tsch. Min. Mitth., 1871, 61) to be a mixture. An analysis of a portion of the specimen upon which Dr. Thompson founded the species, is given by Dr. T. S. Hunt in the Geol. Can., 1863, p. 479.

51. **CACHOLONG**—Beautiful specimens of this mineral are obtainable on the coast between Capes Split and Blomidon (King's Co.), in the province of Nova Scotia.
52. **CACOCLASITE**—The cacoclasite of Professor H. C. Lewis (the Naturalist's Leisure Hour and Monthly Bulletin, A. E. Foote, No. 87, Exposition extra, 1885), has quite recently been submitted to a careful reëxamination by Dr. F. A. Genth, and shown not to be a good species. Am. Journ. Sci., 3 ser., vol. xxxviii, p. 200, 1889.
53. **CACOXENITE**—Has been observed by Dr. Harrington as occurring in the form of beautiful little yellow tufts on the walls of cavities in calcite at the pyrite deposit near Brockville, in Elizabethtown, province of Ontario.
54. **CALCAREOUS TUFa**—See note to "Travertine."
55. **CALCITE**—Is found in large rhombohedral, also modified crystals, at Partridge Island (Cumberland Co.), and on the coast between Capes Split and Blomidon (King's Co.), and a very fine apple-green calcite is found at McKenzie's River (Inverness Co.), province of Nova Scotia. A coarsely cleavable sky-blue calcite occurs at the Calumet Falls in Litchfield (Pontiac Co.), also in the township of Wakefield (Ottawa Co.), and a yellow, cleavable calcite, also a fibrous variety, in the township of Templeton (Ottawa Co.), province of Quebec. A salmon-red, cleavable calcite in the township of Sebastopol, Renfrew county, in the province of Ontario. Crystalline limestone, suitable for employment as marble, for architectural purposes, occurs in most, and is very abundant in some, of the provinces of the Dominion. White, red, grey, brown, and black (and various shades of these colors) varieties are met with, respectively, at:—St. Armand (Mississquoi Co.), Caughnawaga (Laprairie Co.), Dudswell (Wolfe Co.), Point Claire (Jacques Cartier Co.), St. Dominique (Bagot Co.), St. Joseph (Beauce Co.), etc., in the province of Quebec—and Arnprior (Renfrew Co.), Cornwall (Stormont Co.), L'Orignal (Prescott Co.), Pakenham (Lanark Co.), and elsewhere in the province of Ontario. See also notes to "Dog-tooth-spar," "Foetid calcite," "Iceland-spar,"

"Nail-head-spar," "Travertine." For a list of minerals of the Laurentian limestones, see Report "On the Laurentian limestones of North America," by Dr. T. S. Hunt, Rep. Geol. Can., 1863-66, p. 181, et seq.

56. FOETID CALCITE—A milk-white, cleavable, foetid calcite, forms a large bed in the township of Grenville, and is also met with in the adjoining township of Chatham (Argenteuil Co.), province of Quebec.

57. CANCRINITE—Occurs in the nepheline-syenites of Montreal (Hochelaga Co.), and Beloeil (Rouville Co.), province of Quebec. Anal., B. J. Harrington, Trans. Roy. Soc. Can., vol. i, sec. iii, p. 81, 1882 and 1883.

58. <sup>E</sup>CANNEL COAL—Occurs at Little Glace Bay, Cape Breton, province of Nova Scotia. Anal., H. How, Phil. Mag., 4 ser., vol. xxxvii, p. 268, 1869.

59. CARNELIAN—Is found at Blomidon (King's Co.); at Trout Cove (Digby Co.), and the north shore of Granville (Annapolis Co.), province of Nova Scotia.

60. CASSITERITE—Small quantities of this mineral, in the form of minute grains, were found to be associated with the Sperrylite obtained at the Vermillion mine, in the township of Denison, District of Algoma, province of Ontario (H. L. Wells, Am. Jour. Sci., 3 ser., vol. xxxvii, p. 68, 1889). Very small quantities of this mineral, in the form of minute crystals, have also been found by Dr. Genth (priv. com.) in some tailings from the Battery lead, Malaga gold mining district, Queen's county, province of Nova Scotia.

61. CELESTITE—Occurs:—in white translucent crystalline foliated masses, which are sometimes radiated, and often several inches in diameter, in the Black River or Trenton limestone of Kingston (Frontenac Co.); in large crystallized masses, semi-transparent and of a bluish or occasionally, in parts, pale reddish color, in a vein cutting Laurentian limestone in the township of Lansdowne (Leeds Co.); in radiating fibrous masses, constituting a vein in the Laurentian strata of Bagot (Renfrew Co.); a red variety, in cavities in dolomite, at the forks of the Credit, township of Caledon (Peel Co.). Other localities in this province (Ontario) are:—Owen Sound, Drummond and Grand Manitoulin Islands (Lake Huron), etc.

62. **CENTRALLASSITE**—Is found in trap of Triassic age near Black Rock (King's Co.), in the province of Nova Scotia. Anal., H. How, Ed. N. Phil. Journ., new series, vol. x, p. 84, 1859: Phil. Mag., 5 ser., vol. i, p. 128, 1876.
63. **CERUSSITE**—Has hitherto been met with only in small earthy masses and incrustations, associated with the galenite of certain localities in British Columbia.
64. **CHABAZITE**—Is found in large and very perfect crystals at Swan Creek (Cumberland Co.), Mink Cove and Sandy Cove, Digby Neck, and Williams Brook (Digby Co.), and Pinnacle Island (Colchester Co.), in the province of Nova Scotia. See also note to "Acadialite."
65. **CHALCEDONY**—Is found in many parts of the trap district of Nova Scotia, where, according to Dr. How, an almost unique blue chalcedony is found on the coast between Capes Split and Blomidon (King's Co.), and a very fine milk-white chalcedony near Trout Cove, Digby Neck (Digby Co.). It occurs—of an olive-green color, in small veins on Belanger's Island, lying off the entrance to Richmond Gulf, eastern coast of Hudson Bay; in thin bands or veins, with jasper, on the River Ouelle (Kamouraska Co.), in the province of Quebec. In veins in the amygdaloidal traps of Lake Superior, province of Ontario; and elsewhere in Canada.
66. **CHALCOCITE**—Is found, most frequently in association with chalcopyrite, or chalcopyrite and bornite, in the townships of Leeds and Halifax (Megantic Co.), Brome, Sutton (Brome Co.), Shefford, Stukeley (Shefford Co.), Melbourne, Cleveland, Brompton (Richmond Co.), Acton (Bagot Co.), and Tingwick (Arthabaska Co.), in the province of Quebec—at the Canada West mines on Lake Huron, and Prince's location, Lake Superior, in the province of Ontario.
67. **CHALCOPYRITE**—Is widely distributed throughout many of the Eastern Townships of the province of Quebec. In some of them it is occasionally met with unaccompanied by other ores of copper, but it is more frequently associated with chalcocite or bornite, or both. The more important localities lie in the townships of Bolton, Brome, Sutton (Brome Co.), Leeds, Halifax (Megantic Co.), Stukeley (Shefford Co.), Ascéot (Sherbrooke Co.), Acton (Bagot Co.), Cleveland, Melbourne (Richmond Co.), Chester

(Arthabaska Co.), and Ham (Wolfe Co.). Other noteworthy localities are—the township of McKim, and adjoining townships, in the District of Nipissing; the West Canada mines, Lake Huron, and Point-aux-Mines and other places on Lake Superior, in the province of Ontario.

68. **CHIASTOLITE**—Occurs in a fine grained micaceous schist at Moore's Mills, Charlotte county, province of New Brunswick; and in the somewhat micaceous argillites on Lake St. Francis in Beauce county, province of Quebec.

69. **CHLORITE (PENNINITE)**—Occurs, most frequently, in admixture with other minerals, forming beds of chloritic slates as in Bolton (Brome Co.), Shefford (Shefford Co.), Ascot (Sherbrooke Co.), Cleveland and Melbourne (Richmond Co.), and other Eastern Townships of the province of Quebec. In some of these townships, however, as for instance those of Potton and Bolton (Brome Co.), and Broughton (Beauce Co.), beds of pure compact chlorite are met with, and occasionally, as in Cleveland (Richmond Co.), the chloritic slates are traversed by thin, well defined veins, which are filled with pure scaly chlorite. Anal., T. S. Hunt, Geol. Can., 1863, p. 607.

70. **CHLORITOID**—Is of common occurrence in the micaceous schists of the Eastern Townships, in which it is disseminated in small grains and crystalline plates, or small lamellar and spherical masses. It is thus found in the townships of Leeds (Megantic Co.), Brome and Sutton (Brome Co.), in the province of Quebec. Anal., T. S. Hunt, Geol. Can., 1863, p. 498.

71. **CHONDRODITE**—Is often met with in the crystalline limestones of the Laurentian series. It is found, in grains, in the limestones of St. Jérôme (Terrebonne Co.); in a magnesian limestone in Aldfield (Pontiac Co.), province of Quebec—and, with small scales of graphite, in a white crystalline limestone near Newborough in North Crosby, also in South Crosby (Leeds Co.), in the province of Ontario, and elsewhere in these provinces.

72. **CHROMIFEROUS GARNET**—A very beautiful emerald-green chromiferous garnet occurs, in granular masses and minute crystals, thickly disseminated through a vein of white cleavable calcite, on the east side of Brompton Lake, in the township of Orford (Sherbrooke Co.), and a very similar garnet is found, associated with apatite, pyroxene, calcite, orthoclase, tourmaline and idocrase, in

the township of Wakefield (Ottawa Co.), province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 497; B. J. Harrington, Can. Nat., 2 ser., vol. ix, p. 305, 1881.

73. CHROMITE—Is found in pockets, scattered through serpentine, at Mount Albert, Shickshock Range (Gaspé Co.), and in considerable quantity, in connection with serpentine and other magnesian rocks of the Quebec group, in the townships of Bolton (Brome Co.), Ham and Wolfstown (Wolfe Co.), and Leeds (Megantic Co.), in the province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 504.

74. CHRYSOCOLLA—Is found sparingly amongst some of the copper ores of Lake Superior, province of Ontario.

75. CHRYSOLITE—Occurs in the form of grains, and occasionally as ill-defined crystals, in a dark grey dolerite, near South Lake (Antigonish Co.), province of Nova Scotia. In well-defined green crystals, and olive or amber-colored imperfect crystals, and small honey-yellow grains, in the eruptive rocks of Rougemont (Rouville Co.), Montarville (Chambly Co.), and Montreal (Hochelaga Co.); in red angular masses in a dyke at St. Anne's (Jacques Cartier Co.), and of a pale yellowish to greyish-green color, forming rock masses at Mount Albert, Shickshock Range (Gaspé Co.), in the province of Quebec. Olivine has also been detected in several of the eruptive rocks of British Columbia. Analyses, T. S. Hunt, Geol. Can., 1863, p. 464: B. J. Harrington, Rep. Geol. Can., 1877-78, p. 39 g.

76. CHRYSOTILE—Often constitutes seams, sometimes nearly seven inches thick, in the serpentine of the Eastern Townships of the province of Quebec: the more important localities comprising—the townships of Thetford and Coleraine (Megantic Co.), Shipton and Melbourne (Richmond Co.), Ham (Wolfe Co.), Broughton (Beauce Co.), and Bolton in Brome county. Anal., E. G. Smith, Am. Journ. Sci., 3 ser., vol. xxix, p. 32, 1885.

77. CINNABAR—Occurs, *in situ*, sparsely disseminated through a fine crystalline granular limestone, at the Ebenezer mine, Hector (Kicking Horse) Pass, Rocky Mountains, British Columbia.

78. CLAY IRONSTONE—Is found everywhere in the Coal Measures of Pictou county, Nova Scotia, in irregular beds from five to forty inches thick. Occurs in layers and nodules, in connection with

a small seam of coal at Gaspé, province of Quebec. Is widely distributed in the North-west Territory, in some localities in considerable abundance, in the form of nodules and nodular sheets. Analyses, G. C. Hoffmann, Rep. Geol. Can., 1880-82, p. 8-12 H.

79. **COCCOLITE**—A greenish-grey granular pyroxene or cocolite, occurs in the township of Portland, and the same mineral, of a pale green color, is met with in the, in part, adjoining township of Buckingham (Ottawa Co.), province of Quebec.

80. **COOKEITE**—A micaceous mineral having all the blow-pipe characters of, and which may prove to be identical with, Cookeite was found sparsely disseminated through a specimen of galenite from Otter Tail Creek, province of British Columbia. Ann. Rep. Geol. Can., vol. ii, p. 10 T., 1886 [where, however, the locality is erroneously given—read as above].

81. **COPPER. NATIVE**,—Is found, in the form of grains and irregular shaped masses, occasionally several pounds in weight, in veins and fissures traversing the trap at Cape d'Or and Spencer's Island (Cumberland Co.), Five Islands (Colchester Co.), Margaretville (Annapolis Co.), Briar Island (Digby Co.), and many other places in this section of Nova Scotia. More abundantly, however, in the province of Ontario, occurring in fine particles, filaments, grains or masses, the latter sometimes more than one hundred pounds in weight, in amygdaloidal traps and greenstones, in veins and fissures traversing these, and in sandstones associated with the same, in many localities on the north and east shore of Lake Superior, some of the more important of which are—Battle Island, the Islands of St. Ignace and Michipicoten, also at Mamainse and Cape Gargantua.

82. **CORACITE**—Is said to form a vein about two inches in width, at the junction of the trap and syenite, at Mamainse, east side of Lake Superior, province of Ontario.

83. **CORUNDUM**—Has been found in small light blue crystals imbedded in crystalline Laurentian limestone, also in rose-red to sapphire-blue grains, disseminated through a rock made up of felspar, quartz, calcite, mica and sphene, in the township of Burgess (Lanark Co.), province of Ontario.

84. **COVELLITE**—Occurs in nodular form, with nodules of more or less altered chalcocite, at New Annan (Colchester Co.), province of Nova Scotia. Anal., H. Louis, Trans. N. S. Inst., vol. iv, p. 427, 1878.

85. CRYPTOMORPHITE—Is found, in conjunction with ulexite, Howlite, mirabilite, halite, Arragonite, calcite and selenite, in gypsum deposits at the Clifton quarry, Windsor (Hants Co.), province of Nova Scotia. Anal., H. How, Am. Jour. Sci., 2 ser., vol. xxxii, p. 9, 1861.

86. CUPRITE—Has been found, in association with a little native copper and blue and green carbonate, in quartz, at Spencer's Island (Cumberland Co.),—the collector, Mr. C. W. Willimott, informing me that it occurs, *in situ*, at Bennett's Brook, one mile east of Horse-shoe Cove, and at intermediate points between that and Cape d'Or, one mile west of Horse-shoe Cove (Cumberland Co.), Nova Scotia. Also occurs, but in small quantity only, in some of the copper deposits of the Eastern Townships of the province of Quebec, as at Acton (Bagot Co.), where it has been observed in the form of cinnabar-red stains upon blackish shales.

87. CYANITE—Occurs in the form of radiated columnar aggregates of a pure blue, light bluish-grey, and greenish-grey color, imbedded in a granular quartz, on the North Thompson River, British Columbia. Anal., G. C. Hoffman, Rep. Geol. Can., 1878-79, p. 1 H.

88. DAWSONITE—Occurs in the joints of a white felspathic dyke, cutting the Trenton limestone, near the western end of McGill College, Montreal, (Hochelaga Co.), province of Quebec. Anal., B. J. Harrington, Can. Nat., 2 ser., vol. vii, page 305, 1875; see also vol. x, p. 84, 1883.

89. DIALLAGE (HYDROUS)—Small masses of a pearly, translucent, celandine-green diallage, occur in a rock in the township of Orford (Sherbrooke Co.), and a coarsely cleavable, bronze-colored variety of diallage, forming a rock, is met with in the township of Ham (Wolfe Co.), province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 469.

90. DIOPSIDE—See note to "Malacolite."

91. DOG-TOOTH-SPAR—Large scalenohedrons of calcite have been found at the Bruce and Wellington mines on Lake Huron, also at the Silver Islet and Duncan (formerly Shuniah) mines (at the last named, Professor Chapman observed, in a *vug*, a bunch of crystals, many of which measured upwards of eighteen inches in length), Thunder Bay, Lake Superior, province of Ontario. Good specimens of dog-tooth-spar are also found at Teny Cape (Hants Co.), Black Rock (King's Co.), Partridge Island and Two Islands (Cumberland Co.), etc., in the province of Nova Scotia.

92. **DOLomite**—In the form of rock-masses, is of very common occurrence in Canada. Besides forming great beds among the Laurentian limestones, dolomites make up the chief part of the so-called Calciferous formation, and are developed on a great scale in its geological equivalent, the Quebec group. The so-called limestones of the whole of the Middle and Upper Silurian series in Ontario are, with a few exceptions, dolomites, including the Clinton, Niagara, Guelph, and Onondaga formations. See also note to "Pearl-spar."

93. **DOMEYKITE**—Has been found, in admixture with niccolite, in a vein cutting a bed of amygdaloid on Michipicoten Island, Lake Superior, province of Ontario. Analyses, T. S. Hunt, *Geol. Can.*, 1863, p. 506.

94. **ELAEOLITE**—Is mentioned, by Dr. Hunt, as occurring in orange-red grains, with black hornblende, in a white felspathic rock, which is found in boulders on Pic Island in Lake Superior, province of Ontario.

95. **EPIDOTE**—Characterizes large portions of the metamorphic rocks of the province of Quebec, in many parts of which occur beds which are entirely made up of quartz and epidote; sometimes in distinct grains, at other times forming a homogeneous, generally pale green, very tough and sonorous rock. Characteristic specimens of this rock are met with in the township of Melbourne (Richmond Co.), but beds of the same occur in numerous localities in this section of the province. This mineral has been met with in the crystalline form, in a concretionary epidotic rock, at St. Joseph (Beauce Co.), province of Quebec; also in some of the amygdaloidal traps and greenstones of Lake Superior—as at Mamainse, where crystals of the same are found implanted upon mesolite—in the province of Ontario.

96. **EPISTILBITE**—Is found with stilbite on ledges of trap at Margaretville, about seven miles east of Port George, Annapolis county, province of Nova Scotia. Analyses, H. How, *Am. Journ. Sci.*, 2 ser., vol. xxvi, p. 33, 1858.

97. **EPSOMITE**—Occurs at the Clifton gypsum quarry, Windsor, Hants county, province of Nova Scotia. As an efflorescence on the black shales of the Utica formation near Montreal (Hochelaga Co.), and upon the black shales of Quebec (Quebec Co.), province of Quebec. As an efflorescence on a serpentine rock near the

iron-ore bed of Crow Lake in Marmora (Hastings Co.), and as a crystalline incrustation upon sheltered surfaces of the dolomites at various points along their outcrop from Niagara Falls to Lake Huron, and near Niagara is said to be found, with gypsum, in geodes in the rock—province of Ontario. Also occurs, in association with Mirabilite, as an incrustation upon the cliffs of shale at Fort St. John, Peace River, British Columbia. Anal., G. C. Hoffmann, Rep. Geol. Can., 1875-76, p. 421.

98. ERYTHRITE—Is found as a rose-red incrustation on calcareous spar, at Prince's mine on Lake Superior, province of Ontario.

99. ESSONITE—Occurs in small crystals, with crystals of idocrase, pyroxene and zircon, in calcite at Grenville (Argenteuil Co.), and both massive and crystallized, in the townships of Portland and Wakefield (Ottawa Co.), in the province of Quebec.

100. FAHLUNITE—Is mentioned, by Professor How, as occurring in granite on the road between Windsor and Chester, Hants county, province of Nova Scotia.

101. FASSAITE—A black, occasionally blackish-green, pyroxene from the township of Templeton (Ottawa Co.), province of Quebec, would seem, from its chemical composition and other characters to be referable to this variety. Anal., B. J. Harrington, Rep. Geol. Can., 1877-78, p. 17 a.

102. FLUORITE—Occurs, in green octahedral crystals, with barite, lining fissures in porphyry, on an island three miles east of Gravelly Point; in green cubes, associated with quartz and calcite, at Prince's mine; of a purple color, filling veins in syenite, on the main land opposite Pic Island, and also, with calcite in amygdaloid three miles east of Cape Gargantua; in cubes two or more inches in diameter, associated with large crystals of amethyst, in *vugs* in the large irregular veins in the syenite at the mouth of McKenzie's River, Thunder Bay; in veins near Black Bay and Terrace Bay; on Fluor Island in Neepigon Bay, and elsewhere on Lake Superior, province of Ontario.

103. FREIBERGITE—An argentiferous tetrahedrite, associated with some galenite and sphalerite, in a gangue of quartz, is found at Cherry Creek, thirty-three miles east of the head of Okanagan Lake, province of British Columbia.

104. GALENITE—Is very widely distributed throughout Canada ; both in interstratified masses, veins, and small crystalline aggregations, etc., scattered through rocks of various kinds. Some of the most noteworthy localities of its occurrence are situate—in the counties of Carleton, Lanark, Leeds, Frontenac, Hastings, and Peterborough, and on the north shore of Lake Superior, as at Prince's Mine, Thunder Cape, and Point des Mines, etc., in the province of Ontario. Extensive deposits of galenite exist in the Illecillewaet district,—at Mount Stephen (Tunnel Mountain), and at Hot Springs and Hendryx Camps, Kootanie Lake, etc., in the province of British Columbia. Fine specimens consisting of more or less perfect octahedra, the axes of some which were five centimetres in length, have been found, in *vugs*, at the Silver Islet mine, Lake Superior.

105. GARNET—Is very frequently met with, and in nearly all parts of the Dominion. The following comprise some of the many localities of its occurrence. In the province of Quebec : small beds of granular red garnet occur at St. Jérôme (Terrebonne Co.), in Rawdon (Montcalm Co.), and at the north-east side of Bay St. Paul (Charlevoix Co.) : white lime-alumina garnet, mixed with serpentine, is met with at Orford (Sherbrooke Co.), and an apparently homogeneous rock composed in great part of a similar variety, occurs at St. Francis (Beauce Co.) : red and yellowish-red varieties are met with in the townships of Chatham and Grenville (Argenteuil Co.) : a rose-red iron-alumina garnet is found disseminated in small masses through gneiss on the Rouge River and vicinity in the township of Clyde, and dark red garnet in the townships of Villeneuve and Templeton, and large and handsome crystals of colorless, light brownish, pale olive-green, and brownish-yellow garnet in the township of Wakefield, Ottawa county. Magnificent crystals of red garnet occur, imbedded in micaceous schist, on the Skeena and Stickeen Rivers, and a massive brownish-red manganese lime-iron garnet is found near Foster's Bar, Fraser River—in the province of British Columbia. Analyses, T. S. Hunt, Geol. Can., 1863, 496. See further under "Almandite," "Andradite," "Chromiferous garnet," "Essonite," "Grossularite," "Spessartite."

106. GENTHITE—A mineral apparently identical with Genthite has been met with in a vein on Michipicoten Island, Lake Superior, province of Ontario. Analyses, T. S. Hunt, Geol. Can., 1863, pp. 506, 507.

107. **GISECKITE**—Dysyntribite occurs at Arisaig pier and Frenchman's Barn in Antigonish county, province of Nova Scotia.

108. **GLAUCONITE**—Occurs in a sandstone of the Lauzon formation, near Point Lévis (Lévis Co.), and on the Island of Orleans, in the province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 487.

109. **GMELINITE**—Has been found at Cape Blomidon (King's Co.), and Two Islands and Five Islands (Colchester Co.), in the province of Nova Scotia. Analyses, A. A. Hayes, Am. Journ. Sci., vol. xxv, p. 78, 1834; O. C. Marsh, ib., 2 ser., vol. xliv, p. 362, 1867; A. B. Howe, ib., 3 ser., vol. xii, p. 270, 1876.

110. **GOLD**—The most important auriferous regions of Canada are situated in the provinces of British Columbia, Quebec, and Nova Scotia; the first on the Pacific coast, the last forming the extreme eastern portion of the Dominion. Gold is, however, also found in some of the rivers of the North-west Territory—in the Lake of the Woods and Lake Superior region, and in the district north of Lake Ontario, in the province of Ontario,—and is reported to have been found in a few localities in the province of New Brunswick. In British Columbia mining has been almost entirely confined to the placer deposits. In the vicinity of the Lake of the Woods and of Lake Superior gold occurs in veins associated with silver and other ores. In the townships of Madoc and Marmora (province of Ontario), in auriferous mispickel. In the province of Quebec the placer deposits of the Chaudière region and of the township of Ditton are the only ones in which much work has as yet been attempted. The gold of Nova Scotia is found in quartz, the alluvial gold so far discovered being quite inconsiderable in quantity.

111. **GÖTHITE**—Is mentioned by Dr. Harrington, as occurring, in association with black oxide of manganese and calcite, in veins cutting the Lower Carboniferous limestones at Black Rock, near the mouth of the Shubenacadie, province of Nova Scotia.

112. **GRAPHITE**—This mineral is met with in most of the stratified rocks of the Laurentian system; not only the limestones, but the gneiss, pyroxenite, quartzite and pyrallolite beds sometimes hold disseminated graphite. It is also met with in the iron ores of the series, as in the township of Hull (Ottawa Co.), in the province of Quebec. Apart from its being met with in a disseminated

form, it occurs in beds or seams from a few inches to two or three feet in thickness. These are often interrupted giving rise to lenticular masses, which are sometimes nearly pure and at other times mingled with carbonate of lime, pyroxene, and other foreign minerals. The most important deposits are in the townships of Buckingham and Lochaber (Ottawa Co.), and Grenville (Argenteuil Co.), province of Quebec; but it is also found in the townships of Burgess (Lanark Co.), Loughborough and Bedford (Frontenac Co.), province of Ontario, and, in small quantity, in other localities in these provinces. It is also met with, in a disseminated form, at French Vale and Glendale, in the province of Nova Scotia; in the vicinity of St. John, province of New Brunswick; and at Alkow Harbor, Dean's Canal, in the province of British Columbia. Localities and general mode of occurrence, T. S. Hunt, *Geol. Can.*, 1863, pp. 529, 793, and *Rep. Geol. Can.*, 1863-66, pp. 218-223. Analyses, etc., of Canadian Graphite, G. C. Hoffmann, *Rep. Geol. Can.*, 1876-77, pp. 489-510; analyses of disseminated graphite from Nova Scotia and New Brunswick, G. C. Hoffmann, *Rep. Geol. Can.*, 1878-79, p. 2; *ib.*, 1879-80, p. 1 H.

113. **GROSSULARITE**—Handsome specimens of a white lime-alumina garnet are found in the township of Wakefield (Ottawa Co.), province of Quebec (G. F. Kunz, *Anal.*, C. Bullman, *Am. Journ. Sci.*, 3 ser., vol. xxvii, p. 306, 1884). The white lime-alumina garnet from Orford (Sherbrooke Co., P. Que.), referred to under "Garnet," is also referable to this variety.
114. **GYPSUM**—Occurs in connection with the Lower Carboniferous limestones, in enormous deposits in the province of Nova Scotia. It is largely quarried at Windsor, Newport, Walton, Wentworth, Shubenacadie, and a number of other places. It is a very abundant mineral in the province of New Brunswick, the deposits being both numerous and extensive. They occur in all parts of the Lower Carboniferous district, in King's, Albert, Westmorland, and Victoria counties. Rock masses of granular and compact gypsum, more or less mixed with dolomite, characterize the Onondaga formation of western Ontario, and occur largely in the valley of the Grand River, more especially in the townships of Dumfries, Brantford, Oneida, Seneca, and Cayuga, etc.—It is also met with in the province of Manitoba. See also notes to "Alabaster," "Selenite."

115. **GYROLITE**—Is found on apophyllite in trap, about twenty-five miles south-west of Cape Blomidon, between Margaretville and Port George, Annapolis county, province of Nova Scotia. Anal., H. How, Ed. N. Phil. Journ., new series, vol. xiv, p. 117, 1861.

116. **HALITE**—An important deposit of rock salt is known to exist along the eastern shore of Lake Huron, embracing the counties of Bruce, Huron and Lambton, in the province of Ontario. It was first met with at Goderich, in 1866, at a depth of 964 feet; in the year following at Clinton, at a depth of 1,180 feet, and in the succeeding year at Kincardine, at a depth of about 900 feet; subsequently at Seaforth at 1,035 feet, and again at Kingstone's Mills in Warwick, at 1,200 feet. A boring made in Goderich in 1876, and which was carried to a depth of 1,517 feet, has shown the existence of no less than six beds of rock salt, one of which is close upon 31 feet, and another very nearly 35 feet in thickness. For geological details, records of borings, and analyses of brines and salt, see following reports by Dr. T. Sterry Hunt—"On Brine-springs and Salt," Rep. Geol. Can., 1863-66, pp. 263-272. "On the Goderich Salt Region," ib., 1866-69, pp. 211-242, and a second report on the Goderich salt region, ib., 1876-77, pp. 221-243.

117. **HALOTRICHITE**—Has been found in some heaps of shale and slack coal, at the Glace Bay coal mines, in Cape Breton county, province of Nova Scotia. Anal., E. Gilpin, Trans. N. S. Inst., vol. vi, p. 175, 1883-86.

118. **HELIOTROPE**—Reported by Professor How, as having been found by Dr. Gesner in small nodules or fragments of rock on the beach of Chute's Cove (Annapolis Co.), has been found, *in situ*, by C. W. Willimott, at Two Islands (Cumberland Co.), province of Nova Scotia.

119. **HEMATITE**—Important deposits of red hematite are met with at several localities in Pictou and other counties in Nova Scotia. It occurs, in association with specular iron ore, among the Huronian strata of the Quaco hills, and more abundantly in those of West Beach and Black River, St. John county, province of New Brunswick. Forms an extensive bed in the township of McNab (Renfrew Co.), and is further found in the townships of Dalhousie and Beckwith (Lanark Co.), Palmerston (Frontenac Co.), Madoc (Hastings Co.), Leeds (Leeds Co.), etc.—at Gros Cap, north side

of Michipicoten Harbor, and other localities in the Lakes Superior and Huron region, province of Ontario. See also notes to "Micaceous iron ore," "Specular iron ore," "Martite." Mineral associations of hematite, B. J. Harrington, Rep. Geol. Can., 1873-74, p. 212. Analyses, by various analysts, ib., pp. 223-226, and subsequent Reports.

120. **HEULANDITE**—Fine specimens of this mineral are met with at Isle Haute, Partridge Island, and Two Islands (Cumberland Co.), also at Black Rock, Hall's Harbor, Long Point, and Cape Blomidon (King's Co.), in the province of Nova Scotia.

121. **HORNBLENDE**—Black crystallized hornblende enters abundantly into the diorites of Yamaska Mountain (Yamaska Co.), and Mount Johnson (Iberville Co.), and occurs sparingly in the trachytes of Brome (Brome Co.), and Shefford (Shefford Co.) Mountains: beds of black hornblende, holding garnets, are associated with the serpentines of Mount Albert in the Shickshock Mountains (Gaspé Co.), and black or greenish hornblende is very commonly disseminated through the felspathic rocks of the Laurentian series, giving rise to syenite and syenitic gneiss: also forming beds of hornblendic rock, as at Lake St. John (Chicoutimi Co.), province of Quebec. Black or dark green hornblende, in cleavable masses, is found associated with the magnetite of Bathurst and South Sherbrooke townships (Lanark Co.), province of Ontario. Anal., B. J. Harrington, Rep. Geol. Can., 1873-74, p. 201.

122. **HORNSTONE OR CHERT**—Occurs, in veins traversing syenite in the township of Grenville (Argenteuil Co.), in the province Quebec; in great abundance, in nodular masses and thin layers, in the Corniferous formation, and occasionally, in a similar form, in the limestones of the Trenton and Niagara groups; also, in layers, in the lower beds of the silver-bearing rocks of Thunder Bay (the lower division of the Upper Copper-bearing rocks of Logan), Lake Superior, province of Ontario.

123. **HOWLITE**—Occurs, in the form of nodules which are generally about the size of filberts or pigeon's eggs, and occasionally, but rarely, as much as two inches in diameter, imbedded in anhydrite and gypsum at Brookville, and in gypsum at Winkworth, Newport Station, Noel, etc., in Hants county, province of Nova Scotia. Analyses, H. How, Phil. Mag., 4 ser., vol. xxxv, p. 32, 1868.

124. **HUMBOLDTINE**—Has been observed as a sulphur-yellow incrustation upon the black schists at Kettle Point in the township of Bosanquet, Lambton county, province of Ontario.

125. **HURONITE**—The Huronite of Dr. Thompson—an impure or altered form of anorthite—is found, *in situ*, near Sudbury (District of Nipissing, province of Ontario), where it occurs in rounded or somewhat angular masses, in a dark green dyke of diabase. Anal., B. J. Harrington, *Trans. Roy. Soc. Can.*, vol. iv, sec. iii, p. 82, 1886.

126. **HYACINTH**—Cherry-red, transparent crystals of zircon, are mentioned by Dr. Hunt as occurring in the crystalline limestone of the township of Grenville, Argenteuil county, province of Quebec.

127. **HYPERSTHENE**—Occurs, in broad lamellar masses, with andesite and ilmenite, constituting a rock at Château Richer (Montmorency Co.), and in the parish of St. Urbain, near Bay St. Paul (Charlevoix Co.), in the province of Quebec. Also (Paulit) at Paul Island, Nain, coast of Labrador. Anal., T. S. Hunt, *Geol. Can.*, 1863, p. 468.

128. **ICELAND-SPAR**—Fine cleavable and transparent masses of calcite occur at Harrison's location on St. Ignace Island, Lake Superior, and in the township of Galway (Peterborough Co.), province of Ontario.

129. **ILMENITE**—Occurs in vast beds or masses in anorthosite rock in the parish of St. Urbain, at Bay St. Paul (Charlevoix Co.), and in a similar rock in Château Richer (Montmorency Co.), and in Rawdon (Montcalm Co.). Large deposits, associated with labradorite rocks, have also been observed near the mouth of Rapid River (Bay of Seven Islands), on the Saguenay River, on the shores of Lake Kenogami, and it has also been met with in several other localities in the province of Quebec. Analyses, T. S. Hunt, *Geol. Can.*, 1863, p. 501, and *Rep. Geol. Can.*, 1866-69, p. 260.

130. **ILVAITE**—A substance which, from its composition and physical characters, was regarded as a variety of lievrite, was found in the form of a boulder, in the vicinity of Ottawa (formerly Bytown), Carleton county, province of Ontario. Description and analysis, T. S. Hunt, *Geol. Can.*, 1863, p. 465.

131. INFUSORIAL EARTH—Is found occupying the bottoms of lakes in several of the counties of the maritime provinces. The deposits are not unfrequently of considerable depth, and the earth remarkably pure. Some of the more important localities are—Fountain Lake, Amherst (Cumberland Co.), Folly Lake (Colchester Co.), and Merigonish (Pictou Co.), in the province of Nova Scotia, and Fitzgerald Lake, about seven or eight miles from St. John (St. John Co.), Pollet Lake, Mechanic Settlement and Pleasant Lake, about six miles to the south-west (King's Co.), in the province of New Brunswick. Anal., G. C. Hoffmann, Rep. Geol. Can., 1878-79, p. 4 H.

132. IRIDOSMINE—Occurs, as first observed by Dr. T. S. Hunt, in the form of small hard steel-grey plates, associated with the native platinum found in the gold washings of the Rivière du Loup, Beauce county, province of Quebec.

133. IRON-OCHRE—Extensive deposits of iron-ochre (*var. limonite*) are met with in numerous localities in the province of Quebec. A remarkable deposit of this material is found in St. Anne (Montmorency Co.), and very large beds of the same occur in Cap de la Madeleine (Champlain Co.), and in Pointe du Lac (St. Maurice Co.). Amongst other places, where deposits of more or less importance occur, may be mentioned the counties of Bonaventure, Joliette, Laval and Vaudreuil. In the province of Ontario, beds of ochre are met with in Walsingham (Norfolk Co.), Esquesing (Halton Co.), Sydenham (Grey Co.), Nottawasaga (Simcoe Co.), and other townships. Chemical examination of iron-ochres, T. S. Hunt Geol. Can., 1863, p. 512.

134. IRON SAND—Occurs at St. Mary's Bay, Digby county, province of Nova Scotia. Considerable deposits of the same are met with at Moisie, Portneuf, Bersimis, Mingan, and Natashquan, in Saguenay county, and at Batiscan, in Champlain county, and elsewhere in the province of Quebec. It is also found on the shores and islands of Lakes Superior, Huron, Erie, Ontario, and many of the smaller lakes in the province of Ontario. Mode of occurrence, examination, and analyses, T. S. Hunt, Rep. Geol. Can., 1866-69, pp. 261-269.

135. ISERITE—Constitutes a certain portion of the black magnetic sands met with at St. Mary's Bay, Digby county, province of Nova Scotia, on the north shore and Gulf of the St. Lawrence,

province of Quebec, and on the shores and islands of Lakes Superior, Huron, Erie and Ontario, etc., in the province of Ontario.

136. JAMESONITE—Is stated to occur near Fredericton, New Brunswick. Professor Bailey (of the University of New Brunswick) informs me that should such be the case, it would most probably be at the antimony mine in the parish of Prince William (about twenty-five miles from Fredericton), York county, province of New Brunswick.

137. JASPER—A red and purple striped, and red and yellow striped jasper, is abundant at St. Mary's Bay (Digby Co.), and a red variety is found on Briar Island, in the same county, on Partridge Island (Cumberland Co.), Long Island, and at Woodworth's Cove (King's Co.), in the province of Nova Scotia. A blood-red jasper, often finely clouded, occurs near Sherbrooke (Sherbrooke Co.), a small bed of dark green and reddish-brown jasper, traversed by small veins of white chalcedony, at River Ouelle (Kamouraska Co.), and a dark-red jasper in the township of Hull (Ottawa Co.), province of Quebec. This mineral also enters largely into the composition of the beautiful jasper conglomerate—consisting of pebbles of red and reddish-brown jasper and smoky quartz, thickly imbedded in a white quartzite—which constitutes great beds on the north shore of Lake Huron, province of Ontario.

138. KALINITE—Is mentioned by Professor Chapman as occurring in considerable abundance on the exposed faces of some high bluffs of argillaceous shale on Slate River, a tributary of the Kaministiquia, about twelve miles west of Fort William, Lake Superior, province of Ontario.

139. KÄMMERERITE—Is mentioned by Dr. Hunt as occurring, with chromite, in serpentine in the townships of Bolton (Brome Co.), and Melbourne (Richmond Co.), in the province of Quebec.

140. KAOLINITE—Is met with in masses, sometimes half an inch thick, in fissures in a sandstone of the Sillery formation, just below the Chaudière Falls (Lévis Co.). The masses have a greenish or yellowish-white color and are composed of minute soft scales, very unctuous and slightly coherent (Anal., T. S. Hunt, Geol. Can., 1863, 495). This mineral has also been found in the form of minute pearly scales of a yellowish-white color, unctuous and plastic, lining cavities in a rock in the township of Acton (Bagot

Co.), likewise in the province of Quebec. Anal., G. C. Hoffmann, Rep. Geol. Can., 1874-75, p. 314.

141. **KERMESITE**—Occurs, in small crystalline tufts, with native antimony, stibnite, valentinite and senarmontite, in veins traversing argillite in the township of South Ham, Wolfe county, province of Quebec.

142. **LABRADORITE**—Fine examples of this felspar occur in St. Jérôme, Morin—bluish, opalescent, cleavable,—Abercrombie, and Mille Isles (Terrebonne Co.), also at Rawdon—as a bluish-white granular homogeneous rock—(Montcalm Co.), and Château Richer—as a pale bluish or greenish-grey rock, with red spots—(Montmorency Co.), in the province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 478; G. C. Hoffmann, Rep. Geol. Can., 1874-75, p. 316.

143. **LAUMONTITE**—Is very abundant at Port George, where occasionally veins of three inches thickness are seen intersecting the sides of the cliff, and is also found at Margaretville, where it occurs colored green by copper, Annapolis county, province of Nova Scotia. Anal., H. How, Am. Journ. Sci., 2 ser., vol. xxvi, p. 30, 1858.

144. **LAZULITE**—Has been found—massive, of a deep azure-blue color, in narrow veins traversing a greyish-white, in parts milk-white, subtranslucent quartz —three-quarters of a mile east of the mouth of the Churchill River, District of Keewatin. Anal., G. C. Hoffmann, Rep. Geol. Can., 1878-79, p. 2 H.

145. **LEAD, NATIVE**,—Was observed by Professor Chapman to occur, in the form of thin strings, in a colorless quartz from the vicinity of Dog Lake of the Kaministiquia, Thunder Bay, Lake Superior, province of Ontario.

146. **LEPIDOMELANE**—Was recognized by Mr. R. A. A. Johnston in a sample of ore from the township of Marmora, Hastings county, province of Ontario. The material consisted of a fine granular arsenopyrite, through which was distributed a somewhat large amount of lepidomelane and a little white sub-translucent quartz.

147. **LIGNITE**—Of varying composition, but for the most part of very superior quality, of Cretaceous and Laramie age, is found over very extensive areas throughout the North-west Territories; there

are also extensive Tertiary deposits, supposed to be of Miocene age, both on the coast and interior of British Columbia, which in many places contain lignites. For reference to analyses, see under "Mineral Coal."

148. **LIMONITE**—Important deposits of this mineral are met with in Pictou and Colchester counties, province of Nova Scotia. As there met with it occurs in the form of lustrous botryoidal or mammillary and stalactitic masses, which exhibit a fibrous structure when broken; also compact and lustreless, and at other times earthy. Analyses, B. J. Harrington and G. C. Hoffmann, Rep. Geol. Can., 1873-74, pp. 231-234.—See also notes to "Bog-Iron-ore," "Iron-ochre."
149. **LOGANITE**—Occurs, in the form of short thick oblique rhombic prisms of a clove or chocolate-brown color, in association with serpentine, phlogopite and apatite, in a white crystalline limestone at the Calumet Falls, Pontiac county, province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 490.
150. **LOUISITE**—Honeyman, with analysis, Trans. N. S. Inst., vol. v, p. 15, 1879-82. [Needs further examination; free silica is very probably present—Dana, Min., App. 3, p. 70, 1882].
151. **MAGNESITE**—Has, so far, only been met with in rock masses, forming, in association with serpentine, dolomite and steatite, beds in the townships of Sutton and Bolton, Brome county, province of Quebec.
152. **MAGNETITE**—Is found, often beautifully crystallized, in veins in the Triassic trap of King's and Annapolis counties, in the province of Nova Scotia. Occurs massive, or disseminated in crystals in dolomite and chloritic slate (sometimes constituting fifty-six per cent. of the mass) in the metamorphic strata of the Eastern Townships of Sutton, Bolton, Ascot, Leeds and Orford; in the Laurentian, in the township of Hull, etc.,—also, in the form of black sand (see note to iron-sand), on the north shore of the Gulf of St. Lawrence,—in the province of Quebec. Forms deposits, frequently of very great extent, among the Laurentian rocks, in the counties of Frontenac, Hastings, Haliburton, Lanark, Leeds, Peterborough, Renfrew, etc., and is also met with in certain localities on Lakes Superior and Huron, province of Ontario. Further west, important deposits occur in crystalline rocks, supposed to be of Carboniferous age, in the vicinity of Gillies Bay, south side of Texada

Island, province of British Columbia. Crystals pseudomorph after pyrite, E. B. Kenrick, Ann. Rep. Geol. Can., vol. iii, p. 58 T, 1887. Mineral associations of magnetite, B. J. Harrington, Rep. Geol. Can., 1873-74, p. 194. Analyses, by various analysts, ib., pp. 208-211.

153. **MALACHITE**—Has, so far, not been met with in characteristic specimens, but merely as an incrustation on copper ores or in the form of stains and small earthy masses in copper-holding rocks. Of the numerous localities where it has been observed may be mentioned—Spanish River, where some of the quartz veins carrying chalcocite are stained throughout with green carbonate of copper; with galenite in a lode which crosses a long narrow island near the shore at Thunder Cape, Lake Superior, province of Ontario. In the form of little fibrous masses, with sulphurets of copper, in a drusy calcite at the Black River mine, St. Flavien, Lotbinière county, province of Quebec.

154. **MALACOLITE (DIOPSIDE)**—Large twin-crystals of white pyroxene, associated with cinnamon-colored garnets, are found in druses in a pale greenish pyroxene rock in the township of Orford (Sherbrooke Co.), and slender, pale greyish-green colored crystals, sometimes six inches in length, occur imbedded in limestone at the Calumet Falls (Pontiac Co.), province of Quebec. Crystals of pale greyish-green pyroxene—often replaced on their acute lateral edges, and occasionally several inches in diameter—associated with crystals of dark green pargasite, and black tourmaline, are found at the High Falls and at the Ragged Chute in the township of Blythfield, Renfrew county, province of Ontario. Analyses, T. S. Hunt, Geol. Can., 1863, pp. 467, 468.

155. **MANGANITE**—Is frequently found associated with pyrolusite at Teny Cape (Hants Co.), and elsewhere—often crystallized on that ore. It is abundant at Walton and Cheverie, and is met with at Douglas and Rawdon, in Hants county, province of Nova Scotia. Also occurs on Amherst Island, Magdalen Islands, province of Quebec.

156. **MARCASITE**—Has been obtained, by Professor Chapman, from the walls of a vein holding galenite and chalcopyrite, in the township of Neebing, a few miles east of the Kaministiquia River, northwest shore of Lake Superior, province of Ontario.



164. **MICACEOUS IRON-ORE**—Is found in veins in the Cobiquid Hills of Londonderry (Colchester Co.); constitutes an important deposit on the west side of the East River (Pictou Co.); is met with on Salmon River, at Melrose, Manchester, and Roman's Valley in Guysborough county, and at St. Peters, Richmond county, province of Nova Scotia. Mingled with variable amounts of quartz and chlorite, it constitutes beds of a schistose rock in the townships of St. Armand (Mississquoi Co.), Brome and Sutton (Brome Co.); occurs in small beds in the township of Bristol (Pontiac Co.), and is also met with in the townships of Templeton and Hull (Ottawa Co.), and elsewhere in the province of Quebec. Forms small beds in Potsdam sandstone in the townships of Bastard (Leeds Co.), and Ramsay (Lanark Co.), in the province of Ontario.

165. **CHROMIFEROUS MICA**—Is found in several localities in the Eastern Townships of the province of Quebec. Minute scales of it occur in the magnesite of Sutton (Brome Co.), and it has also been observed, in larger plates and imperfect crystals, in a dolomite from Bolton, in the same county.

166. **MICROCLINE**—Is found in large cleavable masses, in association with quartz, muscovite, albite, etc., constituting a coarse pegmatite vein in the township of Villeneuve, Ottawa county, province of Quebec.

167. **MILLERITE**—Is met with in small grains and prismatic crystals, together with minute grains and crystals of a bright green chromiferous garnet, disseminated through a white cleavable calcite, in a vein on the east side of Brompton Lake, in the township of Orford (Sherbrooke Co.), province of Quebec.

168. **MINERAL COAL**—See under “Anthracite,” “Bituminous coal,” “Cannel coal,” “Lignite.”  
 Analyses, E. Hartley, Rep. Geol. Can., 1866-69, pp. 365-447—T. S. Hunt, ib., 1871-72, p. 98—B. J. Harrington, ib., 1872-73, pp. 76-81; ib., 1873-74, p. 63; ib., 1876-77, pp. 466-470—G. C. Hoffmann, ib., 1873-74, pp. 90-93 and 188-191; ib., 1875-76, p. 423; ib., 1879-80, pp. 8-14 H; ib., 1882-84, pp. 1-44 M; Ann. Rep. Geol. Can., 1885, pp. 1-11 M; ib., 1887-88, pp. 5-20 T.

169. **MINERAL RESIN**—Is not unfrequently very freely disseminated through some of the coals and lignites of the North-west Territory,

in the form of small flattened grains and nodules of a yellow, yellowish-brown or brown color. The nodules do not, generally speaking, exceed a-quarter of an inch in diameter, but occasionally some of much larger dimensions are met with. One from a coal seam on the Middle Fork of the Old Man River, Rocky Mountains (North-west Territory), was found to be a little over an inch and a-half in diameter, and three-quarters of an inch thick.

170. MINERAL TAR—Is often seen exuding from the deposits of bituminous sand rock occurring along the banks of the Athabasca River (see note to "Asphaltum"), and in numerous places on the ground at the foot of either bank, or on terraces lower than their summits, this tar collects in pools, or flows in sluggish streams to lower levels. It also occurs at several localities on the shores of the western part of Great Slave Lake; at one or two places on Peace River, and elsewhere in this part of the North-west Territory.

171. MIRABILITE—Occurs at the Clifton gypsum quarry, Windsor, Hants county, province of Nova Scotia; and, associated with epsomite, as an incrustation upon the cliffs of shale at Fort St. John, Peace River, province of British Columbia. Anal., G. C. Hoffmann, Rep. Geol. Can., 1875-76, p. 421.

172. MOLYBDENITE—Is somewhat widely distributed, being found, although in most instances only in small quantities, in nearly all the provinces of the Dominion. Some of the most noteworthy localities of its occurrence are those in the province of Quebec, as—near the mouth of the Quetachoo River, in Manicougan Bay, on the north shore of the Gulf of the St. Lawrence, where it occurs disseminated in a bed of quartz six inches thick, in the form of nodules from one to three inches in diameter, and in flakes which are sometimes twelve inches broad, by one-fourth of an inch in thickness; at Harvey Hill in the township of Leeds (Megantic Co.), occurring in small rounded masses of fine granular structure, in veins of quartz and bitter-spar; and the township of Aldfield (Pontiac Co.), where perfect and very handsome crystals have occasionally been found, and others, less perfect but of considerable dimensions are met with.

173. MOLYBDITE—Has been met with in the form of an earthy yellow powder on molybdenite, in the township of Alleyn (Pontiac Co.),

in the province of Quebec, and in the township of Ross (Renfrew Co.), in the province of Ontario.

174. MONAZITE—In the form of a nodular mass, was found at the Villeneuve mica mine, in the township of Villeneuve, Ottawa county, province of Quebec (Ann. Rep. Geol. Can., vol. ii, p. 11 T, 1886). Dr. F. A. Genth has recently made an analysis of a specimen from this locality, the results of which are given in Am. Jour. Sci., 3 ser., vol. xxxviii, p. 203, 1889.

175. MORDENITE—Occurs imbedded in trap, some two or three miles east of Morden or French Cross, in King's county, province of Nova Scotia. Anal., H. How, Journ. Chem. Soc., new series, vol. ii, p. 100, 1864.

176. MORENOSITE—Is mentioned by Dr. Hunt as having been observed, as an efflorescence of minute acicular greenish-white crystals, on an ore of nickel from the Wallace mine, Lake Huron, province of Ontario.

177. MUSCOVITE—Large plates and crystals of this species occur in a vein of graphic granite on Alumette Lake, at Montgomery's clearing, about five miles above Pembroke, Renfrew county, province of Ontario. It is met with, in association with black tourmaline, on Yeo's Island in the Upper St. Maurice (Portneuf Co.), and abundantly, and not unfrequently, in crystals of very large dimensions, in a coarse pegmatite vein (described in note to "Albite"), in the township of Villeneuve (Ottawa Co.), province of Quebec. A rose-colored mica, closely resembling, if indeed not identical with, the rose-colored muscovite of Goshen, Mass., has recently been met with by Mr. C. W. Willimott, in the township of Villeneuve (Ottawa Co., P. Que.). It was associated with pale green muscovite, in a matrix composed of albite with a little white translucent quartz.

178. NAIL-HEAD-SPAR—Very fine specimens of nail-head-spar are found at Teny Cape, Hants county, in the province of Nova Scotia.

179. NATROLITE—Handsome specimens of this mineral are found at Swan Creek (Cumberland Co.), Cape Blomidon (King's Co.), and Gate's Mountain (Annapolis Co.), etc., in the province of Nova Scotia. It occurs, associated with analcite, in some of the dykes cutting the Trenton limestone at the reservoir extension, Montreal

(Hochelaga Co.), province of Quebec. Anal., B. J. Harrington, Rep. Geol. Can., 1874-75, p. 303.

180. NEPHELITE—Is stated, by Dr. Hunt, to occur in white crystals, with small grains of blue sodalite, in the nepheline syenite of Brome Mountain (Brome Co.), it also occurs, as a constituent of a similar rock, at Montreal (Hochelaga Co.), and Belœil (Rouville Co.), province of Quebec. See also note to "Elaeolite."

181. NEPHRITE—This mineral has been found by Dr. G. M. Dawson, in the valley of the lower Fraser (British Columbia), in the vicinity of Lytton, on the site of an abandoned Indian village, in small water-worn boulders, evidently derived from the beaches of the river, some having been merely more or less broken, whilst others had been sawn or otherwise partly manufactured into implements (Can. Rec. Sci., vol. ii, p. 364, 1886-87). It has also been found (as first announced in Science, April 20, 1888), by Dr. G. M. Dawson and Mr. W. Ogilvie, on the Lewes River, a tributary of the Yukon, North-west Territory (Ann. Rep. Geol. Can., vol. iii, p. 38 b, 1887), but has not as yet been found *in situ*.

182. NICCOLITE—Has been found, in admixture with Domeykite, in a vein cutting a bed of amygdaloid on Michipicoten Island, Lake Superior, province of Ontario. Anal., T. S. Hunt, Geol. Can., 1863, p. 506.

183. NITRE—Has been found in cavities in calcareous tufa, on the Nazco River, and has also been met with at Big Bar, Fraser River, province of British Columbia.

184. OBSIDIAN—Is found in large and small masses on the higher eastern slopes of Il-ga-chuz Mountain, but the most notable locality for this mineral is the mountain named Beece, or Anahim's Peak, an isolated summit between the Il-ga-chuz and Tsi-tsutl Mountains, in the upper Blackwater country (G. M. Dawson, Rep. Geol. Can., 1876-77, pp. 78, 79); it also occurs at Tsooskatli, the upper part of Masset Inlet, (on a small islet north-east of Tas-kai-guns), Queen Charlotte Islands (id.—ib., 1878-79, p. 88 b), and other localities in British Columbia.

185. OCTAHEDRITE—Is reported, by Professor How, as occurring in small but fine crystals, in quartz, at Sherbrooke, Guysborough county, province of Nova Scotia.

186. OLIGOCLASE—Occurs in more or less perfect crystals, in groups, of a white or faintly greyish-white color, in the township of Hull (Ottawa Co.), and a white, rarely greenish or greyish, felspar, having the composition of oligoclase forms, with black hornblende, the intrusive diorite of Mount Johnson (Iberville Co.), province of Quebec. A white to pale grey felspar, also referable to this species, is the constituent of a coarse crystalline diorite occurring at the Fournier mine, in the township of South Sherbrooke, Lanark county, in the province of Ontario. Analyses, T. S. Hunt, Geol. Can., 1863, p. 477; B. J. Harrington, Rep. Geol. Can., 1873-74, p. 198.

187. ONTARIOLITE—A scapolite from the township of Galway, Peterborough county, province of Ontario, has been called Ontariolite by C. U. Shepard (Am. Journ. Sci., 3 ser. vol. xx, p. 54, 1880). [The value of an approximate analysis given, is destroyed by the impurity of the material analyzed; thus far it has no claim to be considered an independent species—Dana, Min., App. iii, p. 106, 1882.]

188. OPAL—Common opal or semi-opal is mentioned by Dr. How, as occurring at a few localities in the province of Nova Scotia. See also notes to "Cacholong," "Hyalite," "Tripolite."

189. ORTHOCLASE—This felspar is very abundant among the rocks of the Laurentian system, and well-defined cleavable masses of a reddish, greyish-white or white color, may be obtained in many localities, some of the most important (Laurentian) of which are—the townships of North Burgess and Elmsley (Lanark Co.), Ross, in large crystals, and Sebastopol, also in very large crystals (Renfrew Co.), in the province of Ontario—Grenville and Chatham (Argenteuil Co.), and most of the townships of Ottawa county. Also occurs in veins cutting altered slates in the townships of Leeds and Inverness (Megantic Co.), and Sutton (Brome Co.); and in the trachytes of Chambly, Brome and Shefford Mountains, and Mount Royal, province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, pp. 475, 476: G. C. Hoffmann, Rep. Geol. Can., 1876-77, pp. 511, 512.

190. PARGASITE—Finely terminated crystals of dark-green pargasite, sometimes an inch in diameter, are found implanted upon, or imbedded in, a greenish-white pyroxene, at the High Falls and at the Ragged Chute, on the Madawaska, in the township of Blyth-

field, Renfrew county, province of Ontario. Anal., T. S. Hunt, Geol. Can., 1863, p. 466.

191. **PEARL-SPAR**—Is abundant, generally associated with calcite and gypsum, in cavities and geodes in the dolomites of the Niagara formation; also, in association with calcite, gypsum, barite and quartz, in geodes in the dolomites of the Calciferous formation, and is found in many of the metalliferous veins of Lake Superior and Lake Huron, province of Ontario—and occasionally in those of the Eastern Townships of the province of Quebec.
192. **PECTOLITE**—Occurs in radiated fibrous aggregations, the fibres being an inch and a quarter and less in length, at Cathcart (now McKellar's) Point, Thunder Bay, Lake Superior, province of Ontario.
193. **PERISTERITE**—The felspar described by Dr. Thompson under this name (in allusion to its beautiful blueish opalescence)—a variety of albite, occurs in large cleavable masses, with quartz, in veins in the township of Bathurst (Lanark Co.), and in a vein made up of a fine-grained mixture of reddish-white albite and quartz, enclosing large cleavable masses of the opalescent albite, on the north shore of Stoney Lake, near the mouth of Eel Creek, in Burleigh (Peterborough Co.), province of Ontario. Analysis of a specimen from first-named locality, T. S. Hunt, Geol. Can., 1863, p. 477.
194. **PERTHITE**—The Perthite of Dr. Thompson (a flesh-red aventurine felspar, which, as shown by Breithaupt, consists of interlaminated albite and orthoclase) occurs in large cleavable masses, in pegmatitic veins cutting Laurentian strata, in the township of North Burgess, Lanark county, province of Ontario.
195. **PETALITE**—Is here mentioned among the minerals of Canada, upon the authority of Dr. Bigsby, according to whom this mineral was found, with tremolite, in a large boulder on the lake shore, at Toronto, York county, province of Ontario.
196. **PETROLEUM**—The most important oil springs are in the township of Enniskillen, in the western peninsula of Ontario, but it also occurs in other townships of this section of the country, as for instance those of Mosa, Oxford and Dereham. It is found, in small quantity, on Great Manitoulin Island in Lake Huron, province of Ontario—also on the St. John River, and on a branch of Silver Brook, and other localities in the county of Gaspé, province of Quebec.

197. PHLOGOPITE—This mineral is of very common occurrence among the crystalline limestones of the Laurentian system, through which it is sometimes more or less abundantly disseminated in the form of small scales or crystals. The largest specimens are generally found in beds near to bands of quartzite or pyroxenic gneiss, which often limit the crystalline limestones, or are interstratified with them. It is also met with imbedded in massive pyroxene rock. Large plates are obtainable in the townships of Grenville (Argenteuil Co.), Buckingham, Templeton etc. (Ottawa Co.), in the province of Quebec—and in the townships of North and South Burgess, in the province of Ontario. Anal., T. S. Hunt, Geol. Can., 1863, p. 495.

198. PICKERINGITE—Occurs as an efflorescence on the shale of a sheltered cliff on the banks of the Meander, Newport, Hants county, province of Nova Scotia. Anal., H. How, Journ. Chem. Soc., new series, vol. i, p. 200, 1863.

199. PICROLITE—This variety of serpentine is met with in the townships of Bolton (Brome Co.), Shipton (Richmond Co.), etc., in the province of Quebec. Anal., T. S. Hunt, Geol. Can., 1863, p. 472.

200. PITCHSTONE—A pitchstone-porphyr, and pitchstone with veins of agate, occurs on the eastern extremity of Michipicoten Island, Lake Superior, province of Ontario.

201. PLATINUM. NATIVE.—The earliest reference to the finding of native platinum in Canada, is that by Dr. T. Sterry Hunt (Rep. Geol. Can., 1851-52, p. 120), who mentions having observed it, in association with iridosmine, in the gold washings of the Rivière du Loup and Rivière des Plantes, Beauce county, in the province of Quebec. It has since been met with, according to Dr. G. M. Dawson (Ann. Rep. Geol. Can., vol. iii, 1887, Part R), in association with placer gold in several localities in the province of British Columbia—occurring in notable quantity in the region of the Upper Similkameen and Tulameen Rivers, in minute scales where the gold is “fine” but increasing in coarseness to small pellets and nuggets in places where “coarse” gold is found. Coarse grains and pellets have, so far, been found only on Granite, Cedar and Slate Creeks, all entering the Tulameen on the south side. He also mentions its occurrence, in fine scales with gold, on Tranquille River, Kamloops Lake; at a place ten miles below Lillooet on the Fraser River, and in nearly all the tributaries of the Yukon

River which have been worked. Analyses, G. C. Hoffmann, *Trans. Roy. Soc. Can.*, vol. v, sec. iii, p. 17, 1887—and an abridged statement of results, *Ann. Rep. Geol. Can.*, vol. ii, p. 5 T. 1886.

202. **POLYDYMITE**—What is regarded as evidently a ferriferous variety of this mineral is found in association with pyrrhotite, chalcopyrite, some pyrite, etc., at the mines of the Canadian Copper Company, Sudbury, District of Nipissing, province of Ontario. Anal., F. W. Clarke and C. Catlett, *Am. Journ. Sci.*, 3 ser., xxxvii, p. 372, 1889.

203. **PREHNITE**—Occurs chiefly in the trap rocks of Lake Superior, sometimes forming distinct veins, as on Slate River an affluent of the Kaministiquia, and with imbedded nodules of native copper on an Island near St. Ignace—province of Ontario. It has also been found in the Laurentian of the township of Templeton (Ottawa Co.) in the province of Quebec. Analyses, E. J. Chapman, *Can. Journ.*, 2 ser., vol. xii, p. 267, 1869; B. J. Harrington, *Rep. Geol. Can.*, 1877-78, p. 34 G.

204. **PSEUDOMORPHOUS QUARTZ**—Fine specimens of quartz pseudomorph after chabazite, have been found at Horse-shoe Cove, Cape d'Or, and of quartz pseudomorph after stilbite, at Clarke's Head (Cumberland Co.), province of Nova Scotia. Silicified wood is found in the vicinity of the Elbow of the South Saskatchewan River, and very characteristic specimens of the same at Ross Coulée, Irvine, District of Assiniboia, North-west Territory.

205. **PSILOMELANE**—Occurs, in association with pyrolusite, at Douglas, Hants county, province of Nova Scotia.

206. **PYRALLOLITE**—Occurs in beds in the crystalline limestone of Grenville (Argenteuil Co.), and Clarendon (Pontiac Co.), in the province of Quebec—also in the townships of Ramsay (Lanark Co.), and Rawdon (Hastings Co.), in the province of Ontario. Analyses, T. S. Hunt, *Geol. Can.*, 1863, p. 471—and of a specimen from Portage du Fort, township of Clarendon, B. J. Harrington, *Rep. Geol. Can.*, 1876-77, p. 484.

207. **PYRITE**—Is very widely distributed throughout the Dominion. The following are a few of the localities where it is met with in a crystalline form:—in fine crystals at La Have (Lunenburg Co.) and Seven Mile Plain (Hants Co.), in the province of Nova Scotia—in large cubical crystals in a vein of copper ore in the township

of Melbourne (Richmond Co.), province of Quebec—in perfect octahedra at Elizabethtown (Leeds Co.), also in a crystalline form in many of the veins and gneissoid rocks of the townships of Madoc, Elzevir and Tudor (Hastings Co.), and in the trap dykes of Lakes Superior and Huron, province of Ontario.

208. PYROLUSITE—Is met with near Kentville (King's Co.), at Springville (Pictou Co.), Musquodoboit (Halifax Co.), Onslow (Colchester Co.), near Amherst (Cumberland Co.), and at Walton and other places, especially at Teny Cape, in Hants county, province of Nova Scotia. This mineral also occurs at several places in the counties of Westmorland, Albert, St. John and King's,—the most important deposit being at Markhamville, in the parish of Upham, King's county,—in the province of New Brunswick.

209. PYROXENE—Is of common occurrence, especially among the rocks of the Laurentian system, where it not unfrequently forms beds, or large segregated veins, which sometimes consist of pure pyroxene, at other times of pyroxene in admixture with other minerals, constituting pyroxenite. It also sometimes occurs disseminated in beds of magnetite and, in the form of grains and imperfect crystals, it is common in the beds of limestone. Among the numerous localities of its occurrence may be mentioned:—Kildare (Jolliett Co.), the townships of Argenteuil and Grenville (Argenteuil Co.), Buckingham, Templeton, Portland, Wakefield and adjoining townships (in Ottawa Co.), and Litchfield (Pontiac Co.), in the province of Quebec. The townships of North Elmsley and North Burgess (Lanark Co.), and elsewhere in this part of the province of Ontario. Very large crystals of pyroxene are not unfrequently met with in the above referred to townships of Templeton, Portland and Wakefield, as also in the townships of Sebastopol and Blythfield (Renfrew Co.), in the province of Ontario—and a very handsome lilac-colored pyroxene occurs in the augmentation of the aforementioned township of Grenville. See also notes to “Augite,” “Coccolite,” “Djallage,” “Fassaite,” “Malacolite,” “Sahlite.”

210. PYRRHOTITE—Occurs in many localities; among which may be mentioned the townships of Barford (Stanstead Co.), Sutton and Bolton (Brome Co.), where it is associated with copper ores; St. Francois (Beauce Co.) associated with pyrite, arsenopyrite, etc., and St. Jérôme (Terrebonne Co.) associated with pyrite—in the province of Quebec. Abundantly, more or less associated with

chalcopyrite, in McKim and adjoining townships (District of Nipissing); accompanying pyrite in Elizabethtown (Leeds Co.), at Balsam Lake (Peterborough Co.), province of Ontario. A very interesting twin crystal found by Dr. Harrington at the Elizabethtown deposit (Anal., B. J. Harrington, Rep. Geol. Can., 1874-75, p. 304), was examined by Dr. E. S. Dana, Am. Jour. Sci., vol. xi, p. 386, 1876.

211. **RETINALITE**—Is found, imbedded in crystalline limestone, in the township of Grenville (Argenteuil Co.), and on Calumet Island (Pontiac Co.), in the province of Quebec. Analyses, T. S. Hunt, Geol. Can., 1863, p. 471.
212. **RHODOCHROSITE**—Has not, as yet, been found in Canada in distinct examples, but occurs in admixture with many of the manganese ochres, and is also present, in traces, in some of the altered strata of the Eastern Townships of the province of Quebec.
213. **RIPIDOLITE**—Has, so far, not been identified with certainty as occurring in Canada. A chloritic mineral occurring—in uneven folia, of an olive-green color and pearly lustre—in association with apatite, quartz, pyrite and calcite, in the township of Templeton (Ottawa Co.), province of Quebec, has been examined by Dr. Harrington (Rep. Geol. Can., 1877-78, p. 346), and found to have, approximately, the composition of ripidolite. A foliaceous mineral found in a serpentine rock in the adjoining township of Buckingham would, so far as it has yet been examined, also appear to be referable to this species.
214. **ROCK CRYSTAL**—Is found, in large crystals, at South River (Antigonish Co.); in perfect crystals at Spencer's Island (Cumberland Co.); at Sandy and Mink Coves (Digby Co.), etc., in the province of Nova Scotia. In crystals (known as Quebec diamonds) showing unusual modifications in form, in fissures and cavities in limestone rocks in the vicinity of Quebec, and in large transparent crystals, in quartz veins, at Harvey's Hill mine (Leeds Co.), province of Quebec. Also in good crystals in cavities of the quartz veins of the Bruce mines, Lake Huron, and similar veins at Thunder Bay, Lake Superior, province of Ontario.
215. **ROSE QUARTZ**—Is found at Westfield (Queen's Co.) and, in the form of pebbles, near the town of Shelburne (Shelburne Co.), in the province of Nova Scotia.

216. **RUTILE**—Occurs, in the form of needles in quartz, at Scot's Bay (King's Co.), province of Nova Scotia. In small orange-red grains in the ilmenite of St. Urbain, Bay St. Paul (Charlevoix Co.); in small red flattened crystals in the chloritic schists of the township of Sutton (Brome Co.); in minute grains in the black sand obtained in the washing of the auriferous gravel at Rivière du Loup (Beauce Co.), and in somewhat large crystals, occasionally geniculated, in a gangue of dolomite and barite, in the township of Templeton (Ottawa Co.), province of Quebec. It has been found in tolerably distinct crystals in crystalline limestone on Green Island in Moira Lake, in the township of Madoc (Hastings Co.), and in the form of delicate acicular crystals, in quartz cavities at the Wallace mine, Lake Huron, province of Ontario. See also note to "Sagenite."

217. **SAGENITE**—A transparent quartz penetrated with needles of rutile is stated, by Professor How, to have been found at Scot's Bay, King's county, province of Nova Scotia.

218. **SAHLITE**—The most common variety of pyroxene met with in the apatite deposits of Ottawa county, province of Quebec, would appear to be a lime-magnesia-iron pyroxene or sahlite. On peculiarities in forms of crystals from this locality, see results of observations by B. J. Harrington, Rep. Geol. Can., 1877-78, p. 18 g.

219. **SALAMMONIAC**—Has been met with, in association with native sulphur, constituting a deposit on the cliffs of shale on Smoky River, North-west Territory. Anal., G. C. Hoffmann, Rep. Geol. Can., 1875-76, p. 420.

220. **SAMARSKITE**—Has been found on lots one and two of the second range of Maisonneuve, Berthier county, province of Quebec. [When first met with, this township was not laid out, consequently the locality could not be given more definitely than as it appears in the report, here referred to, viz., just beyond the north-western limits of Brassard (the adjoining township), Berthier Co.]. Anal., G. C. Hoffmann, Rep. Geol. Can., 1880-82, p. 1 H.

221. **SAPONITE**—Occurs in cavities in the trap of St. George or Hog Island, Richmond Bay, north coast of Prince Edward Island. Anal., B. J. Harrington, Can. Nat., 2 ser., vol. vii, p. 179, 1875.

222. SELENITE—Is met with in greater or less quantity at several of the gypsum deposits in the province of Nova Scotia, as at Oxford, River Philip (Cumberland Co.). In the province of New Brunswick it is especially abundant at Petitcodiac (Westmorland Co.), where the gypsum deposit, which has a breadth of about forty rods and a total length of about one mile, is traversed through its entire extent by a vein of nearly pure selenite eight feet wide. This mineral is also met with in the provinces of Quebec, Ontario, Manitoba and elsewhere.

223. SENARMONTITE—Occurs, with native antimony, stibnite, valentinite and kermesite, in veins traversing argillite in the township of Ham, Wolfe county, province of Quebec.

224. SERPENTINE—Is met with abundantly among the metamorphic rocks of the Eastern Townships and Gaspé peninsula, in the province of Quebec, where it forms vast masses, which are frequently almost free from other admixture, but at times enclose diallage, actinolite, garnet and chromite; or are intermixed with carbonate of lime, dolomite and occasionally ferruginous magnesite. Extensive beds, mostly containing intermixed carbonate of lime and dolomite, occur in the townships of Thetford and Coleraine (Megantic Co.), Broughton (Beauce Co.), South Ham and Garthby (Wolfe Co.), Melbourne (Richmond Co.), Orford (Sherbrooke Co.), and Bolton (Brome Co.); around Mount Albert in the Shickshock Mountains, and at Mount Serpentine near Gaspé Bay, in Gaspé county. Among the massive and nearly pure Laurentian serpentines may be mentioned those of the townships of Grenville (Argenteuil Co.), in above named province—and North Burgess (Lanark Co.), in the province of Ontario. See also notes to "Chrysotile," "Picrolite" and "Retinalite." Analyses, T. S. Hunt, Geol. Can., 1863, p. 472.

225. SEYBERTITE—Is mentioned by Dr. Hunt, as occurring, with small crystals of blue spinel, in a crystalline limestone in the seigniory of Daillebout, Joliette county, province of Quebec.

226. SIDERITE—A bed of spathic iron, varying in thickness from six to ten feet, occurs in sandstones of the Millstone-grit formation, near Sutherland's River, Pictou county, province of Nova Scotia. Occurs in thin veins in Huronian rocks in the Nerepis valley, and is also diffused to a considerable extent through rocks of Devonian age in the northern part of Charlotte county, in the province of

New Brunswick. Is found in quantity, in beds, on Flint, Davieu's, and other islands of the Nastapoka group, eastern coast of Hudson Bay—and is also met with in quantity in the township of McIntyre, Thunder Bay, Lake Superior, province of Ontario. See also notes to "Clay iron-stone," "Sideroplesite." Analyses, Gordon Broome, Rep. Geol. Can., 1866-69, p. 442; B. J. Harrington, ib., 1877-78, p. 47 G.

227. **SIDEROPLESITE**—Occurs in the ankerite deposits of Londonderry, Colchester county, province of Nova Scotia. Anal., H. Louis, Trans. N. S. Inst., vol. v, p. 50, 1879-82.
228. **SILICIFIED WOOD**—See note to "Pseudomorphous quartz."
229. **SILVER, NATIVE**,—Nuggets and grains of native silver have been found in washing for gold in a great many parts of British Columbia, the largest being obtained in the Omenica district. It also occurs, in association with argentite, at the various mines enumerated in the note to "Argentite."
230. **SMALTITE**—Has been met with in the form of minute crystals, in association with chalcopyrite, in the township of McKim, District of Nipissing, province of Ontario. Ann. Rep. Geol. Can., vol. ii, p. 11 T, 1886.
231. **SMOKY QUARTZ, CAIRNGORM STONE**—Is met with in several localities in the province of Nova Scotia, amongst the most noted being Paradise River and the neighborhood of Bridgetown and Laurencetown in Annapolis county; is also found at Mud Village (Lunenburg Co.), at Margaret's Bay (Halifax Co.), and of very dark color at Little River, about five miles from Halifax.
232. **SOAPSTONE**—See note to "Talc."
233. **SODALITE**—Occurs in the nepheline-syenites of Brome (Brome Co.), Montreal (Hochelaga Co.), and Beloeil (Rouville Co.), in the province of Quebec. A very beautiful blue sodalite, in large specimens, has been found by Dr. G. M. Dawson, in abundance, in the vicinity of Ice River, a tributary of the Beaver-foot, in the Rocky Mountains, province of British Columbia. Anal., B. J. Harrington, Trans. Roy. Soc. Can., vol. iv, sec. iii, p. 81, 1886.
234. **SPECULAR-IRON**—Amongst other localities, is met with in tabular crystals at Sandy Cove, Digby Neck (Digby Co.), province of

Nova Scotia; in tabular crystals, or thick plates, in the township of Leeds (Megantic Co.), also in thick plates in the township of Shefford (Shefford Co.), in the province of Quebec.

235. SPERRYLITE—This recently discovered and highly interesting mineral, arsenide of platinum, was found at the Vermilion mine, township of Denison, District of Algoma, province of Ontario. Anal., H. L. Wells, Am. Jour. Sci., 3 ser., vol. xxxvii, p. 67, 1889; on the crystalline form of Sperrylite, S. L. Penfield, *ibid*, p. 71.

236. SPESSARTITE—Is found, together with black tourmaline, uraninite, monazite, etc., in a coarse pegmatite vein—composed of microcline, albite, muscovite and white and smoky-brown quartz—in the township of Villeneuve, Ottawa county, province of Quebec.

237. SPHAEROSTILBITE—Has been met with by Professor How, at Hall's Harbor, King's county, province of Nova Scotia.

238. SPHALERITE—Is somewhat widely distributed, being found, but most frequently in small quantities only, in all the provinces of the Dominion. It is met with, in greater or less abundance, in almost every metalliferous vein which has been opened on the east and north shores of Lake Superior, and an important deposit of the same is situate some eleven miles north-east of Rossport (formerly McKay's Harbor) on the north shore of that lake, province of Ontario. Also occurs in quantity in the township of Calumet—where it is associated with more or less galenite and a little pyrite,—Pontiac county, in the province of Quebec.

239. SPINEL—Small translucent octahedrons of blue spinel are found in a bed of crystalline limestone in the seigniory of Daillebout (Joliette Co.), in the province of Quebec. Large and not unfrequently very symmetrical black crystals, sometimes an inch or even two inches in diameter, occur in crystallized limestone in Burgess (Lanark Co.), and similar crystals, though less perfect, are found, together with fluorite, apatite and crystals of white orthoclase, in a vein of flesh-red calcite in the township of Ross, Renfrew county, province of Ontario.

240. SPODUMENE—Is said, by Dr. Hunt, to have been observed in a small rolled mass of granite near Perth, Lanark county, in the province of Ontario.

241. STAUROLITE—Occurs in mica-schists of Moore's Lake, near to Moore's Mills, Charlotte county, province of New Brunswick.

242. STEATITE—See note to "Talc."

243 STEELEITE—Is found imbedded in red clay in cavities in Triassic trap, at Cape Split, thirteen miles west of Cape Blomidon, King's county, province of Nova Scotia.

244. STELLARITE—The name given by Professor How to the so-called "stellar" or "oil-coal," which occurs with bituminous coal (in a seam five feet thick, of which one foot ten inches are stellarite) at the Acadia mines on the Acadia Coal Company's area, Pictou county, province of Nova Scotia. Analyses, H. How, Min. N.S., p. 24, 1869. Sir William Dawson, referring to this substance (Acadian Geology, 3rd ed., 1878, p. 339) says:—"The material known as stellar-coal is, as I have maintained in previous publications, of the nature of an earthy bitumen; and, geologically is to be regarded as an underclay or fossil soil, extremely rich in bituminous matter, derived from decayed and comminuted vegetable substances. It is, in short, a fossil swamp muck or mud which, as I have elsewhere pointed out, is the character of the earthy bitumens and highly bituminous shales of the coal formation generally."

245. STIBNITE—An important deposit of this mineral exists in the parish of Prince William (York Co.), in the province of New Brunswick, where it is contained in numerous large and well-defined veins of quartz, filling lines of dislocation in highly tilted argillaceous slates and quartzites: also at Rawdon—where, in association with a little quartz and calcite, it constitutes a vein cutting talcose slates,—and West Gore, Hants county, province of Nova Scotia. It is found in small radiating prismatic crystallizations, with native antimony, valentinite, senarmontite and kermesite, in veins in argillite, in the township of South Ham (Wolfe Co.), province of Quebec. It has been met with in small quantities, in association with pyrite and mica, in a band of crystalline dolomite in the township of Sheffield (Addington Co.), and in small masses mixed with tremolite, under similar conditions, in the township of Marmora (Hastings Co.), province of Ontario—also occurs near Foster's Bar, about twenty-three miles from Lytton, Fraser River, province of British Columbia.

246. STILBITE—Is abundant, and exhibits a large number of crystallized varieties, often of great beauty, at Partridge Island (Cumberland Co.), Hall's Harbor and Morden (King's Co.), and Margaretville

(Annapolis Co.), in the province of Nova Scotia. Anal., H. How, Phil. Mag., 5 ser., vol. i, p. 134, 1876.

247. STRONTIANITE—Occurs, in the form of white fibrous tufts, in cracks in concretionary limestone masses in the Utica slate of St. Helen's Island, Montreal, province of Quebec. Anal., B. J. Harrington, Trans. Roy. Soc. Can., vol. i, sec. iii, p. 81, 1882-83.

248. SULPHATITE—The water of the so-called Sour Springs of Tuscarora (Brant Co.), as also that of a spring in the south-west corner of Niagara, and of one at St. David's, in the same township (Lincoln Co.), and of another about a mile and a-half above Chippewa (Welland Co.), in the province of Ontario, are all remarkable for containing a large proportion of free sulphuric acid. Analyses, T. S. Hunt, Geol. Can., 1863, pp. 540, 545.

249. SULPHUR. NATIVE,—Has been met with in the form of shattered crystals, in a gypsum quarry in Colchester county, province of Nova Scotia. It occurs as a deposit from sulphurous springs in several localities in the province of Ontario, as at Charlottesville (Norfolk Co.), and in Clinton (Huron Co.), at which latter place there is a deposit affording masses of pure yellow compact, or fine-grained, sulphur, together with small transparent crystals of the same. Has also been found, in association with sal-ammoniac, as a deposit on cliffs of shale on Smoky River, North-west Territory. Anal., G. C. Hoffmann, Rep. Geol. Can., 1875-76, p. 420.

250. SYLVANITE—Occurs, in association with argentite and more or less galenite and chalcopyrite, in a gangue of white sub-translucent quartz, at the Huronian mine, township of Moss, District of Thunder Bay, province of Ontario.

251. TACHYLITE—Occurs, according to Dr. G. M. Dawson (Rep. Geol. Can., 1876-77, p. 84), as masses in agglomerate, near the entrance of Peninsula Bay, Fraser Lake, province of British Columbia.

252. TALC—Talc in crystalline foliated masses is sometimes met with in Canada, but it more frequently forms beds of a compact or schistose variety of steatite or soapstone, interstratified with serpentine, magnesite, or clay-slate, and often enclosing actinolite, or bitter-spar. These beds, which occur in strata of Pre-Cambrian or Cambrian age, and are often of considerable thickness and extent, lie principally in the townships of Bolton, Sutton and

Potton (Brome Co.), in the province of Quebec. An unctuous foliated rock, consisting of talc with intermixed carbonates of lime and magnesia, and small quantities of quartz and magnetite, is found in the Laurentian of the township of Elzevir (Hastings Co.), in the province of Ontario. Analyses, T. S. Hunt, Geol. Can., 1863, p. 469.

253. **TENNANTITE**—Occurs, in association with chalcopyrite, pyrite, quartz, etc., at the Crown mine, Capelton, Sherbrooke county, in the province of Quebec. Anal., B. J. Harrington, Trans. Roy. Soc. Can., vol. i, sec. iii, p. 80, 1882-83.

254. **TETRAHEDRITE**—Ordinary tetrahedrite (containing only a little silver) occurs, in a gangue of ankerite, in the vicinity of Foster's Bar, about twenty-five miles above Lytton, Fraser River, and a more or less argentiferous tetrahedrite, associated with variable amounts of galenite and small quantities of one or more, or all, of the following minerals, viz., pyrite, chalcopyrite, bornite, sphalerite, is found at the Illecillewaet mines, between the north and south branches of the Illecillewaet River, Selkirk Range, and at the International claim on the west side of Kootanie Lake; on Ottertail Creek and Carbonate Creek; at Cherry Creek, thirty-three miles east of the head of Okanagan Lake; at some of the Stump Lake mines, Nicola Valley; on Jamieson Creek, which flows into the North Thompson River, and elsewhere in the province of British Columbia.

255. **THOMSONITE**—Specimens of this mineral, in the form of radiating crystals, have been found at the North Mountains of King's county, province of Nova Scotia. See also note to "Mesole."

256. **TITANITE**—Occurs in minute amber-colored grains and crystals, in the granitoid trachytes of Brome (Brome Co.), Shefford (Shefford Co.), and Yamaska (Yamaska Co.) Mountains, and in the diorite of Mount Johnson (Iberville Co.)—in crystals, often of considerable size, of a clove-brown or chocolate-brown color, in the Laurentian of the townships of Argenteuil and Grenville (Argenteuil Co.), Buckingham, Templeton, Wakefield and Hull (Ottawa Co.), and at the Calumet Falls in Litchfield (Pontiac Co.), in the province of Quebec. It is also met with in the Laurentian of the townships of Sebastopol—where very large crystals are sometimes found, also fine twin crystals, and a massive form—(Renfrew Co.), North Burgess—of a honey-yellow color—and

North Elmsley (Lanark Co.), and other townships in this part of the province of Ontario. Analyses, T. S. Hunt, Geol. Can., 1863, 503, and B. J. Harrington, Rep. Geol. Can., 1877-78, p. 28  $\alpha$ .

257. TOURMALINE—Principally black, but not unfrequently brown—is of comparatively common occurrence, in many places, in rocks of the Laurentian series. Among the numerous localities of its occurrence may be mentioned:—Near Hunterstown—where a single transparent brown crystal, remarkable for its modifications, was obtained—(Maskinongé Co.): at Calumet Falls in the township of Litchfield, fine translucent, rich yellowish-brown colored, highly modified crystals with brilliant faces—(Pontiac Co.); in the township of Clarendon—brown crystals of great beauty—(Pontiac Co.): in the townships of Grenville and Argenteuil—black crystals—(Argenteuil Co.); also black crystals on the west side of the North River at St. Jérôme (Terrebonne Co.)—in the province of Quebec. In the province of Ontario:—the townships of North Elmsley, North Burgess and Bathurst (Lanark Co.), Ross—where crystals almost equal in beauty to those from the Calumet Falls have been found,—and Blythfield (Renfrew Co.), Galway and Stoney Lake in Dummer (Peterborough Co.), and Charleston Lake in Leeds county.

258. TRAVERTINE—Deposits from calcareous springs—the material of which is in some instances hard and solid, at other times porous and tufaceous—are abundant in many parts of western Ontario, being met with in the counties of York, Wentworth, Oxford, Wellington, Grey, Simcoe, etc.

259. TREMOLITE—Is abundant in the Laurentian limestones at the Calumet Falls in Litchfield (Pontiac Co.), province of Quebec; also in the townships of Blythfield (Renfrew Co.), and Dalhousie (Lanark Co.), and short thick and highly modified prisms of a white transparent tremolite, have been observed by Professor Chapman, in a white crystalline limestone in the township of Algona (Renfrew Co.), province of Ontario.

260. TURGITE—Occurs with brown hematite at Teny Cape, Hants county, province of Nova Scotia. Anal., H. How, Phil. Mag., 4 ser., vol. xxxvii, p. 268, 1869.

261. ULEXITE—Occurs with cryptomorphite, Howlite, mirabilite, halite, Arragonite and selenite in the gypsum deposits of Hants

county—as at Clifton quarry, Windsor; Brookville; Trecothick's quarry; Three Mile Plains; Winkworth; Newport Station—province of Nova Scotia. Anal., H. How, Phil. Mag., 4 ser., vol. xxxv, p. 32, 1868.

262. URACONITE—Was observed by Dr. Hunt, in the form of a sulphur-yellow crystalline crust, lining fissures in magnetite in the township of Madoc (Hastings Co.), and by Professor Chapman, in a deposit of magnetite in the township of Snowden (Peterborough Co.), province of Ontario.

263. URALITE—Good specimens, showing the partial and complete alteration of pyroxene to uralite, have been found in the township of Templeton, Ottawa county, province of Quebec. Analyses, B. J. Harrington, Rep. Geol. Can., 1877-78, p. 20 *et seq.*

264. URANINITE—Has been found at the Villeneuve mica mine, in the township of Villeneuve, Ottawa county, province of Quebec. Ann. Rep. Geol. Can., vol. ii, p. 10 T, 1886.

265. VALENTINITE—Is found with native antimony, stibnite, senarmontite and kermesite, in veins in argillite, in the township of South Ham, Wolfe county, province of Quebec.

266. VESUVIANITE—Occurs in yellow crystals, with garnet, pyroxene and zircon, in caleite, in the township of Grenville, and in large brown crystals, with tourmaline, at the Calumet Falls in Litchfield (Pontiac Co.): in large brownish-red crystals in a quartzose rock, in the township of Templeton (Ottawa Co.), and Dr. Harrington has recorded the finding of small prisms of green idocrase imbedded in cinnamon stone, in the township of Wakefield, in the same county—province of Quebec.

267. VIVIANITE—An earthy form of this mineral, of a bright blue color, occurs underlying a bed of bog iron-ore in Côte St. Charles, Vaudreuil (Vaudreuil Co.), in the province of Quebec. It has also been met with, in a similar form, at the "Ramparts," Porcupine River, Yukon district, North-west Territory.

268. WAD—This variety of bog-manganese has been met with in Bolton (Brome Co.), Stanstead (Stanstead Co.), Tring, Aubert-Gallion and Ste. Marie (Beauce Co.), and several other localities in the province of Quebec. At Parrsborough (Cumberland Co.) and in Halifax county; at the head of Lewis Bay (Cape Breton

Co.), and in association with the iron ore of the Martin Brook mines at Londonderry (Colchester Co.), province of Nova Scotia. Anal., H. Louis, Trans. N.S. Inst., vol. iv, p. 427, 1878.

269. **WERNERITE**—Scapolite is very frequently met with in the Laurentian; it occurs in large crystals and cleavable masses, with pyroxene and sphene, in Hunterstown (Maskinongé Co.); in the townships of Grenville—in the Augmentation of, pale lemon-yellow—(Argenteuil Co.), Templeton—where good, and occasionally very large though less perfect, crystals are met with—Portland and Wakefield, etc. (Ottawa Co.), and Calumet Island—lilac-colored—(Pontiac Co.), province of Quebec. In very large, but imperfect crystals, on Turner's Island in Lake Clear, in the township of Sebastopol, at Golden Lake in the adjoining township of Algona (Renfrew Co.), and in good crystals in the township of Ross, in the same county—province of Ontario. Analyses, T. S. Hunt, Geol. Can., 1863, p. 474, and F. D. Adams (showing presence of chlorine in scapolites), Rep. Geol. Can., 1877-78, p. 32 G.

270. **WILSONITE**—Fine specimens of this mineral are found in the townships of Portland, Templeton and Hull (Ottawa Co.), in the province of Quebec. As there met with, it is most frequently intimately associated with scapolite, the two minerals occasionally blending into each other. It also occurs in the townships of Bathurst—the locality of its first discovery by Dr. Wilson—and North Burgess (Lanark Co.), in the province of Ontario.

271. **WINKWORTHITE**—The name proposed by Professor How for a mineral found by him, in gypsum at Winkworth, Hants county, province of Nova Scotia. Analyses, H. How, Phil. Mag., 4 ser., vol. xli, p. 270, 1871. [Assumed to require further investigation.]

272. **WITHERITE**—Occurs in a silver-bearing vein—the veinstone of which consists of calcite and quartz with some fluorite, carrying argentite and native silver—at Twin Cities mine, near Rabbit Mountain, Thunder Bay, Lake Superior, province of Ontario.

273. **WOLFRAMITE**—Was found by Professor Chapman, in a large boulder of gneiss, on the north shore of Chief's Island, in Lake Couchiching, province of Ontario. Anal., T. S. Hunt, Geol. Can., 1863, p. 503.

274. **WOLLASTONITE**—Fibrous Wollastonite is often found in the limestones of the Laurentian series, associated with pyroxene, felspar,

quartz, mica and other minerals. Some of the best known localities of its occurrence are: St. Jérôme and Morin (Terrebonne Co.), and the township of Grenville (Argenteuil Co.), in the province of Quebec—and the townships of North Burgess (Lanark Co.), and Bastard (Leeds Co.), in the province of Ontario. Anal., Mr. Bunce, *Geol. Can.*, 1863, p. 465.

75. **ZIRCON**—Small brownish crystals of zircon, with tourmaline, are found in granitic veins which traverse gneiss on the North River, in St. Jérôme (Terrebonne Co.); reddish-brown crystals, which are sometimes half an inch in diameter, occur, in association with wollastonite, pyroxene, sphene, plumbago, etc., in abundance in the crystalline limestone of the township of Grenville (Argenteuil Co.), and it is of frequent occurrence, often in fine crystals, in the apatite veins of Templeton and adjoining townships (Ottawa Co.), province of Quebec. Handsome crystals, including fine twins of zircon, are found in the township of Sebastopol, also large and good crystals of the same in the adjoining township of Brudenell (Renfrew Co.); in small crystals in a graphitic vein in the township of North Burgess (Lanark Co.), and in a syenitic rock on Pic Island in Lake Superior, province of Ontario.

276. **MENACCANITE**—See notes to "Ilmenite," "Iserite."

277. **BOURNONITE**—Was identified by Mr. R. A. A. Johnston in samples of ore (sent to the survey for assay) from the following localities in the province of Ontario, viz., lot 18, range 8, of the township of Marmora (Hastings Co.), the material in this instance consisting of bournonite in association with small quantities of chalcopyrite and pyrite in a gangue of quartz; and from the east half of lot 22, range 3, and west half of lot 22, range 4, of the township of Darling (Lanark Co.), the material from the first of these two localities consisting of bournonite disseminated through a somewhat fine crystalline dolomite, while that from the last mentioned consisted of bournonite with some chalcopyrite in a gangue of white sub-translucent quartz.

278. **HYALITE**—Good specimens of this mineral were obtained by Mr. J. McEvoy from cavities in a dark grey foliated basalt occurring near Hih-hūm Lake, south of Loon Lake, British Columbia.

279. **MICHEL-LÉVYTE**—Barium sulphate crystallizing, according to A. Lacroix, in the monoclinic system (*Comptes Rendus*, vol. 118, p.

1126). The locality of occurrence, which is described as being near Perkins' Mill, is on lot 12, range 12 (about three miles, following the path, from Perkins' Mill) of the township of Templeton, Ottawa county, province of Quebec. Material from this locality has been examined by Dr. Edward S. Dana, who informs me "that he finds it to possess peculiarities in cleavage and lustre like those noted by Lacroix, which, however, he is disposed to regard as due to pressure. It differs from normal barite chiefly in the peculiar development of one of the prismatic cleavages. No variation in optical character from the requirements of the orthorhombic system was observed, while the optical properties are throughout those of ordinary barite." See "On the Barium Sulphate from Perkins' Mill, Templeton, province of Quebec, by Edward S. Dana." Am. Journ. Sci., 3rd ser., vol. xxxix, p. 61, 1890.

280. PRASE—A breccia, consisting of angular fragments of prase cemented together with white chalcedony, was found by Dr. G. M. Dawson filling cavities in Tertiary basaltic rocks in mountains at head of Nicoamen River, British Columbia.









